



**GOVERNMENT OF INDIA
COMMITTEE ON UNEMPLOYMENT**

**REPORT
OF
THE WORKING GROUP ON
AGRICULTURE**

**VIGYAN BHAVAN ANNEX, NEW DELHI
NOVEMBER, 1972**

CONTENTS

	PAGE
INTRODUCTION	(iii)
CHAPTER I Assessment of Rural Unemployment and Underemployment .	1
CHAPTER II Likely Employment Generation Under the Fourth Five Year Plan Programmes of Development in the Rural Areas .	23
CHAPTER III Programmes for Finding Work for the Rural Unemployed during 1974-79	40
CHAPTER IV Coordination of the Programmes at the District Level	66
CHAPTER V Summary and Conclusions	70



INTRODUCTION

Appointment, Composition and Terms of Reference

The Working Group on Agriculture was constituted by the Committee on Unemployment vide Office Memorandum No. 9/2/71-ECU (Tech)-Agriculture, dated September 25, 1971. The initial constitution of the Working Group was as follows :

- | | |
|---|-----------------|
| 1. Dr. K. Ramiah, Member, Rajya Sabha. | <i>Chairman</i> |
| 2. Shri M. K. Mukharji, Joint Secretary, Department of Agriculture, Ministry of Agriculture. | <i>Member</i> |
| 3. Shri Ram Saran, Economic and Statistical Adviser, Ministry of Agriculture. | <i>Member</i> |
| 4. Dr. Raj Krishna, Professor of Economics, Rajasthan University, Jaipur. | <i>Member</i> |
| 5. Dr. A. K. Dutt, Director of Agriculture, Government of West Bengal. | <i>Member</i> |
| 6. Shri S. M. Murshed, (Deputy Secretary) (Manpower), Department of Agriculture, Ministry of Agriculture. | <i>Member</i> |

2. Later, on November 30, 1971, Dr. Nilakantha Rath, Professor of Economics, Gokhale Institute of Politics and Economics, Poona was appointed as an additional member of the Working Group. On transfer of Shri S. M. Murshed from the Department of Agriculture, Shri K. K. Bhatnagar, Deputy Secretary (Manpower), Department of Agriculture was nominated as a member in his place. Dr. A. K. Dutt, Director of Agriculture, Government of West Bengal could attend only one of the meetings. Miss F. K. Wadia, Joint Director, Committee on Unemployment was nominated as Secretary to the Working Group.

3. The Working Group was to advise largely for the agricultural sector on the third term of reference to the Committee on Unemployment, namely,

"To suggest suitable strategies for employment generation, both short-term and long-term, including technical, financial and fiscal measures, in respect of different sectors of the economy, taking into account the mobility of labour and the openings for employment and self-employment in the tertiary sector as a result of the implementation of Plan programmes and various measures initiated by the Government for activating the economy".

It was expected of the Working Group, in regard to the subject allocated to it, "to ascertain facts, locate the main problem areas, examine solution for the problems and suggest such of them as it would recommend for the Committee's consideration".

Programme of Work

4. The Group held twelve meetings, in all, before finalising its Report which is presented in the following pages. In order to obtain an idea of the problems prevailing in the rural areas as required under its terms of reference, the Group examined data on the various facets of employment, unemployment and underemployment available with different Institutions as also the Government. A scrutiny was also made by us of the on-going programmes in the agriculture sector, including the special employment programmes. We also had the benefit of discussions with Shri M. Ramakrishnayya, Additional Secretary, Ministry of Agriculture, on the working of the Crash Schemes for Rural Employment. We looked into the available data on the impact of farm mechanisation on employment. We also took into consideration the views of the Union and State Governments, individuals, Agricultural Universities and other Institutions and Organisations who had replied to the questionnaires issued by the Committee on Unemployment.

Acknowledgements

5. We were greatly helped in our work by the relevant material made available to us by the Directorate of Economics and Statistics, Ministry of Agriculture, Planning Commission and the National Sample Survey Organisation. We would like to thank the Officers and staff of these Organisations who gave all possible assistance throughout the period of our work. Our thanks are also due to Shri H. L. Chawla, Additional Economic and Statistical Adviser, Ministry of Agriculture who assisted in our discussions. The Group wishes to place on record its appreciation of the work done by the Secretariat of the Committee on Unemployment particularly Miss F. K. Wadia, Joint Director, Shri L. R. Dua, Senior Research Officer, Sarvashri N. M. Alvi and B. S. Kapil, Senior and Junior Investigators respectively, Miss A. K. Sharma, Computer and Shri D. R. Sharma, Personal Assistant.

CHAPTER I

ASSESSMENT OF RURAL UNEMPLOYMENT AND UNDER-EMPLOYMENT

1.1. For recommending any programme of action for the rural areas, it would be necessary to obtain some idea of the levels of unemployment and underemployment prevalent in the rural sector at the beginning of the Fourth Five Year Plan and also the likely additions to the labour force in the coming years who would require employment. The Working Group is aware of the Panel set up by the Committee to examine the extent of unemployment and underemployment in the rural and urban areas in the country. But as the Panel's report to the Committee would, in all likelihood, coincide with this report, an attempt has been made in this Chapter to visualise the nature of the problem in the rural areas.

1.2. A mention may be made, in the first instance, of the nature of employment of the labour force in the rural areas in the country. The rural labour force is composed broadly of two categories: those who work on their own farms and enterprises i.e. the self-employed and those who seek employment on wages on other peoples' farms or enterprises for varying periods in the year. A significant proportion of the labour force belong to both the categories; they work for part of the time on their own farms or enterprises and for some part on wages on other peoples' farms or enterprises. In the first place, the problem of a person looking for work throughout the year but not getting any, is not very common. This characteristic is quite understandable because of the composition of the rural labour force indicated earlier and also the availability of supplementary employment under various public works programmes. The second characteristic, which is also the most common of the rural labour force, is the extent of seasonal unemployment, i.e. involuntary unemployment, which is common to both the self-employed and the wage-employed labour force, in view of the intermittent periods of farm operations. The third characteristic of the labour force is that of invisible or disguised unemployment in the sense that productivity is less than some norm of average or marginal productivity, although people are occupied. This characteristic is mainly among small farmers who predominate in the country.

1.3. While the extent of full employment and unemployment can be assessed, there are difficulties in the measurement of disguised unemployment. Attempts have, however, been made by a number of scholars and institutions to measure the extent of unemployment and underemployment in the country. The National Sample Survey Organisation (N.S.S.), the Central Statistical Organisation (C.S.O.), as well

as Registrar General of India had defined those with work and without work, from time to time, for the purposes of surveying the extent of unemployment and underemployment in the country. Examining the various concepts and definitions, the Committee of Experts on Unemployment Estimates (Dantwala Committee) had observed that the concepts as adopted in developed economies were "unsuitable for an economy like ours with its preponderance of self-employment and production within the household enterprises".¹

1.4. A broad view of the character of rural unemployment and underemployment can also be obtained from the various regional studies undertaken by different organisations. Most of these studies are for different periods during the last decade. Their purpose varied : while some of the studies examined the efficacy of the rural works programmes, others were for measuring unemployment and underemployment the methodology used and the norms assumed for the measurement of unemployment also varied according to the requirements of the different studies. A summary of the results of some of these studies is given at the end of this Chapter (Annexure).

1.5. There are three main sources of data for the estimation of rural unemployment and underemployment for the country as a whole. These are the estimations made by the Planning Commission in the Five Year Plans, the decennial Census of India and the data collected in the successive rounds of the National Sample Survey.

Estimates of Unemployment

(a) Planning Commission :

1.6. The Planning Commission's estimates of the backlog of unemployment at the commencement of each of the Plans and the likelihood of additions to the labour force during the Plan periods were arrived at by estimating net additions to the labour force from (a) the employment potential of investment and growth in output during the different Plan periods and (b) utilising information regarding unemployment available from the National Sample Survey rounds and from the Employment Exchange data, with necessary adjustments. No estimates of unemployment in the economy as a whole were attempted for the First Five Year Plan. Rural unemployment was estimated at 2.8 million at the beginning of the Second Five Year Plan (1956-61) on the basis of the first Agricultural Labour Enquiry, 1950-51 as it was expected that with the emphasis given in the First Plan to agricultural development, there could have been no worsening of the unemployment situation by 1956. The total unemployment at the beginning of the Third Five Year Plan was estimated at around 9 million persons (later revised to 7 million). The rural unemployed was placed at 5.8 million persons in 1960-61. In the draft outline to the Fourth Plan

¹Report of the Committee of Experts on Unemployment Estimates, Planning Commission, Government of India, 1970, page 30.

(1966-71), it had been estimated that in 1966 the backlog of unemployment would be between 9 and 10 million and that three-fourths of the unemployed (about 7 million) would be in the rural areas. The Dantwala Committee had commented upon the method of estimating rural unemployment from the Second Plan period onwards as "agricultural workers other than wage labourers were wholly excluded. Thus, it was implicitly assumed that the problem of unemployment did not affect the self-employed in the rural population".² Besides, the estimates of rural unemployment in the Plan documents referred most of the time to complete unemployment and ignored seasonal or visible under-employment. Since this type of unemployment is a more dominant characteristic of rural labour, the Planning Commission's past estimates cannot be considered adequate for the purpose.

(b) Census of India, 1961 :

1.7. The number of unemployed have been enumerated in the 1961 Census data also. Two specific categories of non-workers were classified as unemployed in the 1961 Census data, namely, "A person who has not been employed before but is seeking employment for the first time"³ and "A person employed before but now out of employment and seeking employment".⁴ The Census had adopted a very wide reference period of a working season for the enumeration of seasonal workers. "Moreover, the term 'seeking work' was not defined. Unlike any labour force surveys, the non-workers were not asked a specific question whether they were seeking work or were available for it—it is not unlikely that the number of unemployed enumerated by the 1961 Census—1·41 million (1·29 million males and 0·12 million females) of whom 0·60 million (0·54 million males and 0·06 million females) were in the rural areas—was an underestimate".⁵ In view of the limitations of the definitions adopted in the Census as well as the reference period for the enquiry about unemployment being practically a decade old, the quantitative estimates of rural unemployment are difficult to be made use of for the purpose of assessment of unemployment and under-employment in the rural areas during the seventies.

(c) National Sample Survey :

(i) Based Upon Consumption Expenditure Data

1.8. An approach to the estimation of unemployment and under-employment on the basis of consumption expenditure data collected by the National Sample Survey in its various Rounds is contained in the study 'Poverty in India'.⁶ The study chose to define those persons as

²Report of the Committee of Experts on Unemployment Estimates, Planning Commission, Government of India, 1970, page 8.

³Census of India, 1961, Vol I Part II-B(ii), General Economic Tables, page 3.

⁴A Survey of Research on Employment in India. Provin Visaria. Department of Economics University of Bombay, 1971 (mimeographed) page 53.

⁵Poverty in India, V. M. Dandekar and Nilkantha Rath, (Poona: Indian School of Political Economy), 1971.

poor who were not able to obtain a minimum living in terms of food for themselves and their dependants. The per capita expenditure of the rural (and urban) population in the different expenditure deciles was estimated for the year 1968-69 as follows :

Estimated Per Capita Consumption of different Sections of Rural and Urban Populations in 1968-69

Section of Population	1	Per Capita Consumption of Different Sections of	
		Rural Population	Urban Population (Rupees)
0-5	.	127.2	133.1
5-10	.	173.4	191.3
10-20	.	215.0	248.0
20-30	.	260.8	311.9
30-40	.	304.3	374.6
40-50	.	349.0	441.6
50-60	.	401.5	518.0
60-70	.	458.7	610.8
70-80	.	537.7	751.5
80-90	.	678.6	937.4
90-95	.	875.1	1,344.1
95-100	.	1,544.6	2,263.4
All Sections	.	456.6	621.0

1.9. The study showed that persons with a per capita annual consumption expenditure of less than Rs. 324 were poor in the sense that less than this expenditure did not enable a person to have enough food to meet his minimum calorie requirements. The poor constituted the bottom 40 per cent of the rural population.

1.10. The study contended that, except in the case of families with disproportionately large number of dependants, lack of adequate employment was the cause of poverty. The rural poor consisted of mainly two classes, the landless agricultural labourers and the small farmers. While in the case of agricultural labourers it can be said that they are unemployed on those days when they cannot get wage employment, it is not as easy in the case of self-employed persons like farmers.

A person may spend time in his own 'business' but produce or earn very little (much less than the going daily wage) or nothing. Low productivity and underemployment under the circumstance are not different things. Full employment has, therefore, to be defined in terms of some productivity norm. The study chose to define this norm in terms of an income that would ensure minimum food requirements for the earner and his dependants of a normal size. This norm is also shown to be equal to the total earnings of a person during the year (of 300 working days) at the current daily wage rate. Since the prevailing daily wage rate can be considered as a fair norm of productivity, it becomes clear that poverty is due to lack of adequate employment at the going wage rate. Thus the measure of poverty, or what might be called under-consumption, becomes a measure of prevailing underemployment. The estimate of the extent of rural unemployment in these terms made in the study is given below.

1.11. The study considered that out of the 40 per cent poor in rural India, the lowest 10 per cent belonged to households with a disproportionately larger burden of dependants. There were no adequate data available to properly establish the point. If the relevant detailed data, when available, show the dependency proportion to be greater than this, the estimate of poverty due to underemployment would have to be reduced; otherwise it may have to be increased. Till then, the study merely follows the Planning Commission's suggestion in the matter, and treats the 10 per cent poorest as essentially cases in need of social welfare measures. The remaining 30 per cent were poor because of inadequate employment. The 30 per cent poor in 1968-69 numbered 128·5 million people; nearly 53 per cent of them, i.e. about 65 million were of working age. The overall per capita annual expenditure (or income) of these 30 per cent. people in 1968-69 had to be raised by Rs. 64 so that it could reach the desired minimum level of Rs. 324 i.e. these people together had 20 per cent less income than the required minimum. It means that the available employment and income of the 65 million persons of the working age was sufficient to lift four-fifths of them and their dependants to the desired minimum level. The remaining 20 per cent. had to be provided the entire required employment and income. The study showed that these 20 per cent i.e. about 13 million persons of working age could be ensured the required minimum income if all of them could be provided 300 days of employment at the average daily wage rate of Rs. 2·40 for males and Rs. 1·60 for females. This was not higher than the prevailing average wages in rural India in 1968-69. Thus, the extent of underemployment among the 30 per cent. rural poor could be expressed in terms of unemployed man-year units, by saying that nearly 13 million persons (i.e. about 7·64 per cent. of the rural labour force in 1969) had to be provided with work for the whole year (i.e. 300 days*) at the going wage rate, in

*If the work year is put at less than 300 days, say 273 days, then the wage rate will have to be somewhat higher than indicated in order that the families are ensured the required minimum earning.

order that all the 30 per cent. poor could be lifted out of poverty. This was the measure of rural unemployment in 1968-69 in "Poverty in India".

1.12. This did not of course mean that there were no under-employed persons among the upper 60 per cent. of the rural population. But the average daily earnings of these upper classes was more than the prevailing wage rate, and they were not poor by the definition of this study. Therefore, the estimation of 13 million unemployed man-year units in rural India in 1968-69 could be considered as one minimum estimate of unemployment.

(ii) Based Upon Employment and Unemployment Data

1.13. An alternative approach for the estimation of employment and unemployment could also be obtained from the N.S.S. Rounds. This would be from the data on employment and unemployment collected in its various Rounds. The data collected from the 4th to the 7th Rounds was on an experimental basis when different employment and unemployment concepts were tried in the field. Collection of data regarding the extent and character of employment and unemployment for the country as a whole was attempted for the first time in the 9th Round of the N.S.S. (May-November, 1955). 16,099 households in 1,618 villages were surveyed in the rural areas during the course of that round. The data collected revealed that about 43·50 per cent of the rural population belonged to the labour force.⁶ Studies were also made of the incidence of unemployment and underemployment. The N.S.S. continued its surveys of rural employment, unemployment and underemployment intermittently during its different rounds.

1.14. The definitions used by the N.S.S. from the 14th Round onwards for measuring labour force, unemployment and under-employment were as follows :--

Labour Force :

"All persons classified as 'working' and 'seeking or not seeking but available for work' together constitute the labour force. That is, all employed and unemployed constitute the labour force".

Unemployed : Seeking work or not seeking but available for work

"It constitutes those persons who are reporting as not working during the reference week and who are either seeking work or are not seeking but available for work. All persons reported 'seeking work' and 'not seeking but available for work' constitute what is familiarly known as 'unemployed'".

Moderately Underemployed :

"Those who worked for 29—42 hours per week and reported available for additional work might be treated as moderately under-employed".

⁶A Note on Labour Force Surveys in National Sample Surveys, National Sample Survey Organisation, Government of India, (mimeographed), page 5.

Several Underemployed:

"Those who worked for 28 hours or less per week, or on an average 4 hours or less per day, and reported available for additional work are treated as severely underemployed".

Rural Labour Enquiry

1.15. In the course of the 18th (1963-64) and 19th (1964-65) Rounds, the N.S.S. canvassed schedules on behalf of the Labour Bureau, Simla for collection of field data on incomes, consumption, employment, unemployment, earnings and indebtedness of agricultural labourers in different parts of the country. The Enquiry (called the Rural Labour Enquiry) covered the whole of India on a sample basis and related to all rural labour households which included agricultural labour households. The days of work put in by rural labourers as obtained from this Enquiry revealed that among all rural labour households, men worked for 277 full days and women for 199 full days* in a year. (Among agricultural labour households the days of employment were 272 and 183, respectively).

The rural workers reported unemployment due to want of work for 48 days in the case of men and 19 days for women. While the Rural Labour Enquiry gave an idea of the extent of employment and unemployment among the rural labour households, there is little indication of the total number of unemployed persons in the rural labour force. The findings of the Enquiry have so far been released only in a summary form, and these details may yet have to be compiled on the basis of the data collected in the sample surveys.

1.16. The Group is aware of the comments of the (Dantwala) Committee of Experts on the limitations of the N.S.S. data on employment and unemployment. It is also cognisant of the revisions that have been undertaken in the schedules on employment and unemployment which are to be made use of both in the rural and urban areas in the 27th Round of the National Sample Survey commencing in October 1972. But this round will be completed only in September 1973. It is unlikely, therefore, that the full tabulation results from this Round will be available for use within the country before 1974.

1.17. However, if an idea is to be obtained of the extent of unemployment and underemployment in the rural areas at the beginning of the Fourth Five Year Plan, some estimations would have to be made. Despite its anomalies, the Working Group felt that the N.S.S. estimates have their own validity. The Group, therefore, decided to make use of the percentage estimates of the labour force projections, unemployment and underemployment in the N.S.S. Rounds for the rural population.

*These figures were aggregated by assuming that if a person worked for three-fourths or more of the working hours in a normal day he was fully employed for that day; one-fourth or more but less than three-fourths, that he worked for only half a day; and less than one-fourth that he worked for one-eighth of a day.

Seasonal Variations in the Levels of Employment and Unemployment

1.18. The employment and unemployment enquiries conducted from the 14th to the 17th Rounds of the N.S.S. as well as in the 19th Round covered both the rural and urban areas data on unemployment and employment in the rural areas was not collected in the 18th, 20th and 21st Rounds (Table 1.1). From the 14th Round onwards, the reference period for undertaking the surveys was stabilised to one week as against one day in the previous Rounds, both for the collection of labour force and labour time disposition data. A number of sub-rounds were undertaken, in the course of a Round, to collect data on seasonal variations in the levels of employment and unemployment. The data for the sub-rounds has been analysed by the N.S.S. in its Reports for rural India in the 14th⁷, 15th⁸ and 17th⁹ Rounds. The analysis revealed that unemployment in the labour force was, on an average, largest during March—June and least during July—October in each year. Employment was found to be highest during July—October and steadily declined to reach the lowest during March—June.

Employment and Unemployment of the Rural Labour Force

(Percentages)

Characteristic	1	Overall	July-	November-	March-
			October	February	June
Gainfully Employed	.	95·48	95·85	95·13	94·45
Unemployed	.	4·48	3·53	4·66	5·00
Not Available for work	.	0·04	0·62	0·21	0·55
<i>Percentage Distribution of Gainfully Employed Persons by Hours of Work Per Week</i>					
Hours					
0	.	2·87	3·19	4·70	5·08
1-14	.	5·63	5·47	5·55	6·82
14-28	.	13·45	12·84	13·06	15·07
28-42	.	21·06	20·13	21·02	20·99
42-56	.	30·29	29·62	30·29	28·72
56 and above	.	25·34	27·47	25·84	22·52
Not Recorded	.	1·36	1·28	0·04	0·70

The percentage of severely underemployed, that is, those working for less than 28 hours per week was also largest in March—June and least in July—October.

⁷NSS 14th Round—July 1958-June 1959, Report No. 100. Tables with Notes on Rural Employment and Unemployment, Cabinet Secretariat, Government of India.

⁸NSS 15th Round—July 1959-June 1960, Report No. 156. Tables with Notes on Rural Employment and Unemployment, Cabinet Secretariat, Government of India.

⁹NSS 17th Round—September 1961-July 1962, Report No. 190. Tables with Notes on Employment and Unemployment in the Rural Areas, Cabinet Secretariat, Government of India.

1.19. This seasonal pattern of employment and unemployment varies considerably from region to region depending upon the proportion of the kharif and rabi crops in the total agricultural production. The above calculations are based on the N.S.S. Rounds undertaken in 1958-62. Since then, due to various factors, with the introduction of the new technology, including the extension of multiple cropping, facilitated by the use of short duration crops, the seasonal pattern of employment would have undergone a change in several areas. An idea of the regional variations from State to State is given in the data for 1964-65 in the 19th Round of the N.S.S. (Table 1.2).

Estimates of Unemployment at the Beginning of the Fourth Five Year Plan

1.20. In order to minimise the error likely to arise in computing the estimates of unemployment and underemployment in rural India, a simple average of the participation rates and unemployment/labour force ratios estimated by the N.S.S. in the 14th to the 17th Rounds and the 19th Round for the rural areas was used to arrive at the estimates of unemployment and underemployment for 1969. The population estimates for 1969 were worked out by computing a simple growth rate from the data available in the Census reports for the year 1961¹⁰ and 1971¹¹. On the basis of these calculations, the rural population figures in 1969 worked out to 422.74 million persons, of whom 170.36 million persons were in the labour force. Those employed, unemployed and underemployed were as follows :

Labour Force in the Rural Areas in March 1969

नियमित बल

(Million Persons)

Characteristics	1	Total	Total	Males	Females
			2	3	4
1. Labour Force		170.36	119.08	51.28	
'A' Employed		162.54	115.33	47.21	
(i) Fully Employed (Working for more than 42 hours per week)		98.25	78.63	19.62	
(ii) Moderately Underemployed (Working for 28-42 hours per week)		31.82	19.34	12.48	
(iii) Severely Underemployed (Working for 28 hours or less per week)		30.65	16.12	14.53	
(iv) Not recorded		1.82	1.24	0.58	

¹⁰Census of India, 1961, Vol. I, India Part II-B(i) General Economic Tables, page 86.

¹¹Census of India, 1971, Paper I of 1971, Supplement Provisional Population Totals, page 29.

	1	2	3	4
‘B’ Unemployed		7.82	3.75	4.07
2. Labour Force Available for Additional Work from :				
(a) Severely Underemployed [1 ‘A’(iii)] . .	1.66	0.67	0.99	
(b) Moderately Underemployed [1 ‘A’(ii)] . .	1.20	0.73	0.47	
3. Labour Force Requiring Employment* . . .	9.12	4.31	4.81	

1.21. On an average, therefore, 7.82 million persons were totally unemployed in the rural areas at the beginning of the Fourth Five Year Plan, of whom 3.75 million were males and 0.07 million females. A further 62.47 million persons had work for less than 42 hours in a week. If the persons who were available for additional work from among those who worked for less than 42 hours are added to the totally unemployed so as to make them fully employed, the number requiring additional jobs would work out to about 9.12 million persons of whom 4.31 million would be males and 4.81 million females. In other words, 9.12 million persons were available for work at the beginning of the Fourth Five Year Plan.

1.22. An alternative method of computing the extent of the labour force requiring employment in the rural areas, on the basis of the above data, was also attempted by the Group. If the number of persons with full employment are taken as those who are working for 42 hours or more per week, it would mean that these persons were working for 273 days in a year, assuming a work day to be of 8 hours duration. The rest of the persons may be considered to be underemployed, if it is presumed that all of them worked for less than 42 hours per week involuntarily and would have taken up additional work if it was available. The Group felt that while the male labour force could be assumed to be involuntarily underemployed, it was quite likely that the bulk of the female labour force would be available for outside employment only for a part of the time. Applying these assumptions, it was estimated that the 16.12 million persons in the male labour force working for less than 28 hours in a week would be unemployed for two-thirds of the period of full employment (on the simple assumption that all the persons in this category worked on an average for 14 hours per week). It would be necessary, therefore, to create 10.74 million man-years of extra work to keep all these 16.12 million persons fully employed. Calculations were attempted on similar lines for the 19.34 million male

*The labour force requiring employment includes the number of unemployed (1‘B’) plus the additional man-years that would be required to make those available for additional work [2(a)+(b)] fully employed for 42 hours per week. The additional man-years have been computed by assuming that those working for less than 28 hours would need two-thirds more employment to make them fully employed and for those with 28-42 hours work, one-sixth more employment. (See also para 1.22).

labour force working between 28 and 42 hours per week. These calculations revealed that additional work of 3.22 million man-years would be needed to keep the 19.34 million persons fully employed. Thus, in all, 13.96 million man-years of employment ($10.74 + 3.22$) would be required to keep all the employed male labour force fully employed. If it is assumed that all the female labour force available for additional work required full time employment, then an extra 0.74 million man-years ($0.66 + 0.08$) of work would need to be provided. The extent of the labour force requiring employment on these lines would then be 22.52 million man-years ($7.82 + 13.96 + 0.74$) at the beginning of the Fourth Five Year Plan.

1.23. It is necessary to emphasise again that these estimates of rural unemployment in 1969 are subject to all the limitations pointed out by the Dantwala Committee. We have, however, worked out three estimates of the number of persons for whom employment had to be found in 1969 among the rural unemployed and underemployed viz.:

- (a) 7.82 million persons who were totally unemployed;
- (b) 9.12 million persons who were both unemployed and underemployed but available for additional work; and
- (c) 22.52 million persons which would include 9.12 million persons indicated at (b) plus the 13.40 million persons considered as unemployed on the assumption that work would have to be provided to all the male labour force who were working for less than 42 hours per week.

These three estimates, therefore, range between 7.82 million persons and 22.52 million persons. The ratios of unemployment to the rural labour force in 1969 would then work out to 4.6 per cent., 5.4 per cent and 13.2 per cent. respectively. The Working Group notes that even the minimum estimate at 4.6 per cent. represents a very high incidence of unemployment. The maximum amounts to as much as one-seventh of the labour force being unemployed. For purposes of our study, we have felt that the outstanding unemployment in 1969 could have been anywhere between 9.12 million persons and 22.52 million persons.

Additions to the Labour Force in 1974 and 1979

1.24. Using the same methodology as for 1969, we arrived at the figures for 1974 and 1979, i.e. at the end of the Fourth and Fifth Five Year Plans. The rural labour force would rise to 188.24 million persons by 1974 and still further to 207.28 million persons by 1979. Thus, by the end of the Fourth Five Year Plan, there would be an additional 17.88 million persons in the rural labour force. If employment to these persons has to be provided keeping in view the partial availability of the female labour force for full time employment, then the additions to the rural labour force, for purposes of employment, would work out

to 16.78 million persons*. We have estimated that the outstanding unemployment in 1969 could have ranged anywhere between 9.12 and 22.52 million persons. Together with the new entrants to the rural labour force, the number of persons for whom employment would need to be provided during the Fourth Plan period would be between 25.90 and 39.30 million persons. In the next Chapter, we estimate that at the most 18 million man-year units could be provided with full time employment by the last year of the Fourth Plan as a result of the various development programmes in the rural areas. Even this appears to us as an over-estimate. Therefore, at the end of the Fourth Plan there will be a back-log of more than 7.90 to 21.30 million unemployed persons, depending upon the estimate of unemployment accepted for the purpose of calculation.

1.25. These projections for 1974 and 1979 show that by the end of the Fifth Five Year Plan period, the rural labour force will have increased by 19.04 million persons. The full employment requirements for these new entrants to the labour force is estimated as 17.94 million man-year**. Adding to these the estimated minimum outstanding unemployment in 1974 (7.90 million persons), the country would have to aim at providing full time employment to 25.84 million persons in the rural areas by the end of the Fifth Five Year Plan. If, however, everyone who is underemployed is also provided with additional work (39.24 million persons), the task would be colossal.

TABLE 1.1

*Estimates of Labour Force Employed and Unemployed in the NSS Round
(Percentages)*

NSS Rounds	Labour Force (as percentage of popula- tion)			Labour Force Employed for			Labour Force available for additional work from	
	Total	Em- ployed	Unem- ployed	28hrs or less per week	29.42 hrs per week	More than 42 hrs. per week	Col(5)	Col(6)
1	2	3	4	5	6	7	8	9
14th (July 1958—June 1959)								
Rural . .	41.85	39.51	2.34	23.91	20.11	55.82	6.47	4.71
Males .	56.88	54.81	2.07	18.13	17.34	64.37	5.42	4.63
Females .	26.66	24.04	2.62	37.23	26.48	36.12	8.95	4.90

*These figures have been computed by assuming that all the new entrants to the male labour force, between 1969-74, and 1974-79, would require full time employment; while about 47.83 per cent of the female labour force would require full time employment, the rest would require part time employment (See Table 1.3).

**See foot note on page 26.

13

TABLE 1.1—(Contd.)

TABLE 1·1—Concl.

	1	2	3	4	5	6	7	8	9
Urban	.	31·68	31·05	0·63					
Males	.	50·28	49·32	0·96					
Females	.	10·45	10·20	0·25					
19th (July 1964—June 1965)									
Rural	.	35·83	37·37	1·46	13·05	16·11	70·16	2·88	2·83
Males	.	51·67	50·32	1·35	9·20	13·16	76·94		
Females	.	25·60	24·03	1·57	21·34	22·46	55·55		
Urban	.	31·57	30·96	0·61	9·02	14·29	75·16	2·12	2·20
Males	.	50·17	49·22	0·95	5·53	12·50	80·68		
Females	.	10·35	10·11	0·24	25·43	22·83	50·58		
20th (July 1965—June 1966)									
Rural									
Males	.								
Females	.								
Urban	.	31·01	30·40	0·61					
Males	.	49·02	48·10	0·92					
Females	.	10·35	10·09	0·26					
21st (July 1966—June 1967)									
Rural	.	41·41	40·31	1·10					
Males	.	53·96	52·98	0·98					
Females	.	28·53	27·29	1·24					
Urban	.	31·93	31·42	0·51	5·24*	13·19@81·23**			
Males	.	50·56	49·79	0·77					
Females	.	10·85	10·65	0·20					

*For working 27 hours or less in a week.

@For working 28 to 41 hours in a week.

**For working 42 hours and above in a week.

SOURCE : A Note on Labour Force Surveys in National Sample Surveys, National Sample Survey Organisation, Government of India (mimeographed).

TABLE 1.2

*Distribution of Population by Labour Force Status for the Rural Areas
(Percentages)*

State	Sex	Labour Force Status			Total
		Unem-ployed	Employed	Not in Labour Force	
1	2	3	4	5	6
Orissa	Males	2·51	50·43	47·06	100·00
	Females	4·64	15·24	80·12	100·00
	Total	3·59	32·61	63·80	100·00
Tamil Nadu	Males	1·94	53·30	44·76	100·00
	Females	3·19	31·63	65·18	100·00
	Total	2·55	42·70	54·75	100·00
Kerala	Males	2·86	44·10	53·04	100·00
	Females	2·14	23·39	74·47	100·00
	Total	2·48	33·15	64·37	100·00
Madhya Pradesh	Males	1·46	52·78	45·76	100·00
	Females	3·40	33·01	63·59	100·00
	Total	2·40	43·10	54·50	100·00
Andhra Pradesh	Males	1·55	55·47	42·98	100·00
	Females	2·89	31·61	65·50	100·00
	Total	2·21	43·70	54·09	100·00
Mysore	Males	2·25	53·87	43·88	100·00
	Females	1·95	32·54	65·71	100·00
	Total	2·10	43·52	54·38	100·00
Bihar	Males	1·17	49·76	49·07	100·00
	Females	2·54	14·66	82·80	100·00
	Total	1·88	31·32	66·30	100·00
Manipur	Males	1·32	42·64	56·04	100·00
	Females	2·32	29·96	67·72	100·00
	Total	1·83	36·17	62·00	100·00
Maharashtra	Males	1·06	52·16	46·78	100·00
	Females	2·24	33·38	64·38	100·00
	Total	1·64	43·00	55·36	100·00
Rajasthan	Males	1·32	55·24	43·44	100·00
	Females	1·75	45·45	52·80	100·00
	Total	1·53	50·58	47·89	100·00
Tripura	Males	1·71	50·00	48·29	100·00
	Females	1·91	10·19	87·90	100·00
	Total	1·46	30·03	68·16	100·00

TABLE 1.2—(Concl.)

(Percentages)

State	Sex	Labour Force Status				Total
		Unem-ployed	Employed	Not in Labour Force		
1	2	3	4	5	6	
Assam	Males	0·67	47·20	52·13	100·00	
	Females	2·04	13·47	84·49	100·00	
	Total	1·31	31·39	67·30	100·00	
Uttar Pradesh	Males	0·39	53·35	45·66	100·00	
	Females	1·28	21·74	76·98	100·00	
	Total	1·14	38·20	60·66	100·00	
West Bengal	Males	1·51	48·50	49·99	100·00	
	Females	0·69	11·30	88·01	100·00	
	Total	1·11	30·22	68·67	100·00	
Gujarat	Males	1·11	50·00	48·89	100·00	
	Females	0·87	31·71	67·42	100·00	
	Total	1·00	41·38	57·62	100·00	
Haryana	Males	1·17	47·36	51·47	100·00	
	Females	..	30·10	69·90	100·00	
	Total	0·61	39·14	60·25	100·00	
Jammu and Kashmir	Males	1·05	46·37	52·58	100·00	
	Females	..	4·80	95·20	100·00	
	Total	0·58	27·71	71·71	100·00	
Punjab	Males	0·88	47·54	51·58	100·00	
	Females	..	8·28	91·72	100·00	
	Total	0·48	29·50	70·02	100·00	
Himachal Pradesh	Males	..	57·17	42·83	100·00	
	Females	..	23·60	76·40	100·00	
	Total	..	39·85	60·15	100·00	

SOURCE : NSS Report No. 173, Nineteenth Round : July 1964—June 1965. Tables with Notes on Employment and Unemployment in Rural and Urban Areas of India, Cabinet Secretariat,

TABLE 1.3
Estimates of Labour Force Requiring Employment

(Million Persons)

	1974					1979						
	Total Males	Females	Labour Force Requiring Full Time Employment	1	2	3	4	5	6	7	8	9
I New Entrants to the Labour Force	17.88	12.90	4.93						19.04	13.77	5.27	
II Labour Force Requiring Employment												
(a) Full Time . . .	15.22	12.90	2.32	15.22	16.29	13.77	2.52	16.29				
(b) Part Time . . .												
(i) For less than 28 hrs. per week	1.20		1.20	0.40*	1.27			1.27	0.42*			
(ii) For 28-42 hrs. per week	1.40		1.40	1.16**	1.46			1.46	1.23**			
(c) Total Full Time Employment			16.78								17.94	

*Computed for purposes of full employment on the basis of 1/3 of 42 hours of work per week.

**Computed for purposes of full employment on the basis of 5/6 of 42 hours of work per week.

ANNEXURE

Estimates of Employment/Unemployment by States/Regional Studies

State Name of Study	Organisation or Institution	Year of Study	Area Covered by the Study	Number of House- holds Surveyed	Number of days of Employment	Additional Data on Employment/Unemploy- ment
1	2	3	4	5	6	7

Andhra Pradesh :

A Pilot Study of Field Labourers' Cooperative Societies in Andhra Pradesh.



Indian Institute of Economics, Hyderabad.

1964 Andhra Region
17 Field Labourers
Cooperative So.
cities.

Bihar :

Report of the Bihar Unemployment Committee, 1960.

Government of Bihar, 1956-58
Champawati, Bhagwanpur, Kamlapur, Ghidha, Ismailpur, Diawan, Kenddih, Bisrampur, Sel.

145-269 days per year.

Haryana :

1. Employment Trends and Manpower Situation in Haryana.

Government of Haryana.

1969 State as a whole

Intensity of Underemployment was highest in Gurgaon (56%) and Mohindergarh (40.3%) districts.

2. Changing Structure of Economics Department, Punjab University, Chandigarh, 1969-70
Agriculture in Haryana (A Study of the Impact of the Green Revolution, 1969-70)

Jammu & Kashmir :

Intensive Type Studies of Rural Labour in India, Anantnag District.

State as a whole
1969-70
865 households
(723 of cultivators
142 of agricultural labourers).
106.6 man-days per household of casual labour.

1967-68
3 Villages : Rai Kargan, Dhoni-pura, Thajiwara.



Bureau of Economics & Statistics, Government of Kerala.

1965 - All districts

Work in agriculture came to a standstill between November and March, when employment varied according to the availability of non-farm work.

2.9% of the rural labour force was found to be unemployed.

Kerala :

The period of idleness in the rural labour force was severest in December, January, April, May and June each year in the Blocks.

Madhya Pradesh :

A Survey of Rural Works Programme in Madhya Pradesh.

1965-66
31 selected Community Development Blocks in the State.

ANNEXURE—Contd.

Maharashtra :

1. Report of the Sample Survey of Employment in Rural Handicrafts. Bureau of Economics and Statistics, Government of Maharashtra.

1958-
59

Bombay, Poona,
Aurangabad and
Nagpur Divisions.

2. Employment Generation Under Community Development and Rural Works Projects. Directorate of Employment, Government of Maharashtra.

1963-
64
1964-
65
1965-
66

3 Community De-
velopment Blocks
11 Community De-
velopment Blocks.
25 Community De-
velopment Blocks.

3. Socio-Economic Survey of Visapur Village in Talsgaon Tehsil, District Sangli, Maharashtra. Commissioner of Labour and Director of Employment, Government of Maharashtra.

1965-
66

Visapur Village
All households

17 full time days
of employment
per month.

The period of unem-
ployment ranged from
3 to 8 months and
coincided with the
slack season in agri-
culture.

The period of unem-
ployment ranged from
3 to 8 months and
coincided with the
slack season in agri-
culture.

Mysore :

- Surplus Rural Manpower and Economic Development in Mysore, 1968. D. M. Naikjundappa, Department of Economics, Karnataka University, Mysore.

1966-
67

24 selected villages
in 7 Development
Blocks.

894 households

80% worked for
141 to 180 days in
a year.

200,783 man-days
per year in the
selected villages.

Rajasthan :

Survey of Rural Employment, Directorate of Economics & Statistics, 1963-64. All the Community Development Blocks in the State Government of Rajasthan.

2.36% of the labour force was estimated to be unemployed while the extent of underemployment varied between 11.81% and 28.19% during the different months. The intensity of underemployment ranged between 33.62% and 50.18%.

Survey of Rural Employment and Unemployment and Underemployment in Rajasthan.

1. Agricultural Labour, Wages and Living Conditions in Meerut (UP).

R. C. Saxena (for Research Programmes Committee).

Planning Commission, Government of India.

Uttar Pradesh :

1. Agricultural Labour, Wages and Living Conditions in Meerut (UP). R. C. Saxena (for Research Programmes Committee).

Planning Commission, Government of India.

2. Income Level of the Underemployed, Additional Work Desired by them and Terms and Conditions on which their Labour will be available : A Diagnostic Case Study of Two Village Communities in Uttar Pradesh.

Planning Research and Action Division, State Planning Unit, Government of Uttar Pradesh.

One village each in Meerut and Deoria districts.

100 selected villages in Meerut district.

1,605 agricultural labour households and 1,764 agricultural labourers.

42.86% of the agricultural labourers were unemployed for an average of 64 days in a year.

42.86% of the agricultural labourers were unemployed for an average of 64 days in a year.

Full employment was assessed at 260 days of 8 hours work day.

On this basis, it was found that all the workers among farm families and 60% of agricultural labourers were fully employed in the Meerut village,

while 30% of the workers in farm families and 22% of agricultural labourers reported full employment in the Deoria village.

ANNEXURE —Concl'd.

1	2	3	4	5	6	7
3. A Survey Report of Rural Artisans in Saharanpur District, Uttar Pradesh.	Planning Research and Action Division, State Planning Unit, Government of Uttar Pradesh.	1970				43·5% of the artisans were partially employed working for periods varying between 4 to 8 months.

West Bengal :

Report on Unemployment Survey, 1963.
Bureau of Applied Economics and Statistics, Govt. of West Bengal.

1963-64
CMD and all non-CMD rural areas of the State.



28,575 persons were reported unemployed in the rural areas; of this about 56% (15,5 thousand) were seasonally unemployed. 42% of the seasonally unemployed were owner/tenant cultivators etc. and 52% labourers.

CHAPTER II

LIKELY EMPLOYMENT GENERATION UNDER THE FOURTH FIVE YEAR PLAN PROGRAMMES OF DEVELOPMENT IN THE RURAL AREAS

2.1. The two major objectives for agricultural development envisaged for the Fourth Plan were: (a) "to provide the conditions necessary for a sustained increase" (in agricultural production) "of about 5 per cent. per annum over the next decade" and (b) "to enable as large a section of the rural population as possible, including the small cultivator, the farmer in dry areas and the agricultural labourer, to participate in development and share its benefits"¹. To achieve the former objective, the principal development programmes include cultivation of high-yielding varieties, multiple cropping, extension of irrigation facilities especially ground-water development, increased use of fertilisers and pesticides, provision of institutional credit and strengthening of the infra-structure of research, education, farmers' training, etc. For the latter objective, emphasis is being laid on land reform measures like the Small Farmers Development Agency (SFDA), Marginal Farmers and Agricultural Labourers (MFAL), Crash Scheme for Rural Employment (CSRE), Drought Prone Area Programme (DPAP) and acceleration of research efforts and implementation of pilot projects for increasing production in dry areas. In addition to these, the programmes for the development of animal husbandry, dairying, fisheries and forestry have been substantially stepped up under the Fourth Plan. A number of measures for the development and improvement of living conditions in rural areas are also being taken under community development, co-operation and panchayati raj programmes.

2.2. In order to assess the likely employment generation in the rural areas, the Working Group took into account all the programmes listed under "Agriculture and Allied Sectors" in the Fourth Five Year Plan. The programmes under "Major and Medium Irrigation", "Flood Control" and "Rural Roads" were also included, as these latter programmes would provide employment largely to the rural labour force. The Fourth Plan outlays have undergone some revision after the mid-term appraisal of the Plan : new programmes like the CSRE and DPAP have been transferred from the non-Plan to the Plan Sector for the rest of the Plan period. The public sector outlay for the Fourth Plan programmes under "Agriculture and Allied Sectors" has, therefore, risen from the earlier planned figure of Rs. 2,728.18 crores to Rs. 2,884.86 crores. With the inclusion of the outlay under major and

¹Fourth Five Year Plan, 1969-74, Planning Commission, Government of India, page 120.

medium irrigation, flood control and rural roads, the total outlay for development programmes in the rural areas would be about Rs. 4,132.08 crores. The Plan had envisaged, in addition, an investment by the private sector of an amount of Rs. 1,600 crores. The bulk of the private sector outlay was expected to be met through institutional sources (Rs. 1,100 crores) like the Agricultural Refinance Corporation, the agro-industries corporations, land development banks, Central Cooperative Banks, Rural Electrification Corporation, Indian Dairy Corporation and commercial banks. This investment would have increased by about Rs. 440 crores, being the additional outlay for lift irrigation schemes under the rural electrification programmes. The overall financial outlay for the Fourth Plan programmes for rural development would, therefore, be about Rs. 6,173.06 crores.

2.3. The private sector and institutional investment was to be made for agricultural production programmes, minor irrigation, area development, soil conservation and land reclamation, small/marginal farmers and agricultural labourers programmes, animal husbandry, dairying, fisheries, construction of godowns and warehouses. While the total estimated investment for these programmes was indicated in the Fourth Plan document, separate allocations were available only for the minor irrigation programmes. The likely investment by credit institutions under the small/marginal farmers and agricultural labourers programmes was also indicated in the Plan document.² The Working Group therefore attempted to give a break up of the private sector investment under these heads after taking into account the schemes under consideration by the Agricultural Refinance Corporation and other financial institutions. These estimations are based on broad judgements and may not be very correct (Table 2.1).

2.4. The programmes discussed above and the financial outlays provided for them would be able to generate employment in three different ways during the Plan period: viz., the construction phase, the maintenance or continuing phase and the production phase. Employment in the construction activities would arise in irrigation works, flood control, community building, storage godowns and warehouses, rural roads, soil conservation and land reclamation. Most of these activities are labour intensive. Employment under these activities would, by its very nature, be temporary and would terminate as soon as the construction works of a project were completed. Some of the "works" under these programmes—especially under major and medium irrigation—may be a spill-over from the previous Plan programmes, while some would be new ones. The labour employed at the construction phase may, therefore, include those who were already employed even before the Fourth Plan period.

²Fourth Five Year Plan 1969-74 : Planning Commission, Government of India, page 52.

2.5. With the completion of a number of these programmes, the construction labour force would be disbanded. However, to maintain the assets and institutions thus created in working order, a certain proportion of the labour force would be required on a continuing basis. Continuing employment in irrigation and power, for example, would entail maintenance of works, generation of power and employment connected with workshops ancillary to such projects. Again, gang labour would be required for road maintenance and repair. Under animal husbandry programmes, such continuing employment would be in the establishment of animal health centres, livestock research stations, artificial insemination centres, dairy development, sheep breeding centres, etc. Employment under forestry, on a continuing basis, would include the staff at research stations, for training purposes and conservation and preservation of forests. Similarly under fisheries, staff would be required for maintaining the deep sea fishing stations, harbours, trawlers, refrigerating units, transport arrangements, etc.

2.6. All such schemes would bring in its fold additional activities of a regular nature for which employment opportunities would arise. The major programmes under agriculture such as minor irrigation, land and water management, agricultural extension and research, soil conservation and land reclamation aim at providing conditions necessary for a sustained increase in agricultural production of about 5 per cent per annum over the next decade. These programmes would provide, as a regular feature, the basis for increased economic activity and thereby result in increased employment on a continuing basis. An attempt is made in the ensuing paragraphs to estimate the additional employment that may be available in the rural areas at the different stages of development.



Construction Phase

2.7. The employment potential at the time of the construction phase of the Fourth Plan programmes under agriculture was likely to be the largest of the three phases of employment. The Working Group examined the labour coefficients worked out by the Planning Commission, the yardsticks arrived at by the Ministry of Agriculture, as well as, some of the State Governments. In assessing the employment potential created under the Fourth Plan, the highest available labour coefficients were chosen. For most of the programmes, the employment potential in the construction phase was based on the labour coefficients prepared by the Labour and Employment Division of the Planning Commission in 1960.* After adjustments for price changes, these yardsticks were applied to the outlay on agriculture and allied development sectors in the Fourth Plan. The labour coefficients worked out by the Planning Commission were based on norms of the actual outlay in financial terms; the amount of labour that could be employed with a particular outlay was estimated for the programmes. In the case of some programmes like minor irrigation, soil conservation and land

*Employment Trends and Prospects—A Statewise Analysis, ~~Planning Department~~, Division, Planning Commission, November, 1960.

reclamation, animal husbandry, forestry, fisheries, CSRE and DPAP programmes, the Group made use of the employment potentials as envisaged by the Ministry of Agriculture. The estimates of employment by the Ministry of Agriculture were based, in some cases, on the physical targets envisaged in the Fourth Five Year Plan, and in others, on the financial outlay : In the case of programmes like soil conservation, land reclamation, forestry, etc., the number of skilled and unskilled labourers required for covering a hectare of land had been estimated. The norms were worked out on the basis of financial outlays for the Drought Prone Area Programme at 24 man-days of employment for every Rs. 100 of expenditure incurred under the programme. For the Crash Scheme for Rural Employment, the target to be achieved is 250 thousand man-days of employment per district per annum during 1972-73 and 1973-74. For animal husbandry programmes, the actual requirements of skilled and unskilled labour necessary for manning the different units that would be set up for cattle development, poultry development, sheep breeding, etc., were estimated. In the case of minor irrigation programmes, the proportion of expenditure that would be incurred in the construction of dugwells, improved dugwells, pumpsets, persian wheels, tubewells, surface flow works and lift irrigation for every Rs. 260 crores of expenditure was estimated. On the basis of these proportions, the Ministry of Agriculture worked out the likely potential for employment in million man-days of skilled and unskilled workers.

2.8. By taking the highest available labour coefficients for the construction phase of the outlay on agriculture and allied sectors, major and medium irrigation, flood control and rural roads in the Fourth Five Year Plan period, the Working Group finds that the number of man-days of employment that may be generated during the five years of the Fourth Plan may be 7,453·1 million. If the average employment per persons is taken at 273 days (which has been assumed by us as the period of full employment in the previous Chapter), then these figures would mean that about 27·30 million man-years of employment would be generated by the different Fourth Plan programmes. This would be roughly the total number of man-years of labour that would be required in the construction phase of the various projects over the five years of the Fourth Plan. On an annual basis, it would work out to about 5 to 6 million man-years of employment at the construction phase in the country. Such a calculation would, however, imply that the annual outlay on each of the five years would be one-fifth of the total outlay under the Fourth Plan programmes. However, we understand that the proportion of the total outlay in the five years increases with the passage of each year. The share of the total investment is roughly in the proportion of 15 : 18 : 20 : 22 : 25 in the five successive years. Assuming this to be more appropriate, one can say that in the last year of the Fourth Plan the total employment that would be generated in the construction phase of the outlay on the various programmes enumerated earlier would be 27·30/4, that is 6·85 million man-year units (Tables

2.9. As mentioned earlier, a number of the programmes that have been targeted for during the Fourth Plan period, may be a spill-over of the investment activity going on during the Third Plan period and the three Annual Plans. It is quite likely that the employment during the construction phase of these investments in the earlier Plan periods may have ceased in the current Plan with the completion of the projects. The new investment during the Fourth Plan would, therefore, employ some of those who would otherwise have remained unemployed once their work in the earlier programmes had been completed. Again, investment in agriculture during the Fourth Plan was more than double that during the Third Plan or even in the Annual Plans. It may, therefore, be said that more than half of the employment potential in the construction phase of the Fourth Plan would be new employment, that is, over and above what was there in the earlier Plan periods. It is quite likely, therefore, that out of a total estimate of 6·85 million persons who would find employment in the last year of the Fourth Five Year Plan, a part were in employment in the construction work connected with the earlier Plans. No figures are, however available of their number.

Continuing Phase

2.10. As mentioned earlier, some of the labour which is employed at the construction phase will continue to get employment even after the programmes are completed to maintain the assets and institutions created in working order. For this purpose, as in the case of the construction phase, the Working Group made use of the data on labour co-efficients prepared by the Labour and Employment Division of the Planning Commission in 1960, after adjustments for price changes as hitherto. The likely additional man-days of employment that would be made available on a continuing basis by the supplementary employment created under the small farmers and marginal farmers and agricultural labourers programmes was also added. These programmes would largely assist the farmers in obtaining credit for improving their land as well as assisting them in supplementary employment under subsidiary occupations like animal husbandry, dairying, etc. The yardsticks of the additional hours of work that would be made available to the farmers in subsidiary occupations were used to arrive at the additional man-days of employment that would accrue by 1973-74. In the overall, it has been estimated that the Plan programmes will provide continuing employment of the order of 1,439·4 million man-days every year after the completion of the proposed programmes of investment in the rural areas. This amounts to about 5·27 million man-year units from the last year of the Fourth Plan. Added to the 6·85 million man-years of new employment which would be available in the last year of the Fourth Plan in the construction phase, it would give a total of 12·12 million man-years of new employment in the last year of the Fourth Five Year Plan (Table 2.8 and 2·10)

Production Phase

2.ii. The bulk of the programmes envisaged in agriculture and the allied sectors are to provide conditions for a sustained increase in the production of agriculture during the next decade. The creation of the new productive assets like new sources of irrigation, land reclamation, flood control, soil conservation, agricultural extension and research would give rise to the expansion and intensification of agricultural productive activity. This would, in turn, mean the expansion of employment opportunities and activities on a continuing basis in agricultural production. In order to estimate the number of new persons that would be provided with additional employment in agriculture in the production phase, it would be necessary to find out the additional labour that would be required per hectare by the end of the Fourth Plan. No firm norms relating to these aspects are readily available. Some data has, however, been collected on the utilisation of labour days per hectare for the different crops in the farm management studies conducted by the Directorate of Economics and Statistics, Ministry of Agriculture. A number of studies have been undertaken at the University levels also by individual economists and experts. On the basis of these estimates, the Group attempted to work out the average labour days per hectare that may be required for the cultivation of different crops in irrigated and dry areas in 1968-69 and 1973-74 to arrive at the additional days of employment that may be available by the end of the Fourth Plan. The average labour days employed per hectare were computed for crops like rice, jowar, bajra, maize, ragi, wheat, barley, gram (total pulses and foodgrains), sugarcane, oilseeds, cotton, tobacco and jute and the plantation crops like tea, coffee, rubber and cinchona. No estimates were available for the area under condiments and spices, fruits and vegetables, other food crops, mesta, sannhamp, dyes and tanning material, drugs and narcotics. However, on the basis of the estimates arrived for the former crops, an attempt was made to project the additional days of labour that would be required for the latter crops also. The irrigated area for 1973-74 was estimated on the expectations of achievement of the Plan programmes for major, medium and minor irrigation by that year. It was also assumed that there would be no decline in the gross dry cropped area in the country. While the net area under dry crops may go down with the introduction of irrigation, with part of the dry area being double-cropped, the ultimate gross dry area may not change. Further, the labour days per hectare under different crops were calculated for gross irrigated and gross dry area so as to take care of the effects of cropping intensity and shift in cultivation. It was also assumed that the entire gross irrigated area under cereals, except under rice, would be cultivated by the high-yielding or the hybrid varieties by 1973-74. In the case of rice, we have assumed that the Fourth Plan target of 10 million hectares under high-yielding varieties, would be achieved. These estimations put the area under the high-yielding/hybrid varieties of cereals much above the targets in the Fourth Five

Year Plan. On the basis of these estimations, the additional employment that would be available at the end of the Fourth Plan period would be about 1,174·0 million man-days, that is, approximately 4·30 million man-year units (Tables 2.9 and 2.10).

2.12. Some additional employment is likely to be available in the production phase of other ancillary programmes like animal husbandry, forestry, fisheries, etc., also, but there is no sound basis available for estimating the additional employment potential under these programmes—Part of them have already been covered in the continuing phase of employment of these programmes. Even otherwise, the employment under these programmes would be only a fraction of the additional labour potential in crop production. The total additional employment potential in the construction, continuing and production phases in the last year of the Fourth Plan would, therefore, come to about 16·42 million man-years ($6\cdot85 + 5\cdot27 + 4\cdot30$). As mentioned earlier, these calculations have erred very much on the optimistic side (Table 2.10).

2.13. The increased investment under the programmes discussed in the earlier paragraphs and the productive activity that would be generated would give rise to increased transport and trade in the rural sector. These latter activities would have some increased employment potential. As there is little data of the extent of increase in employment as a result of these activities, the Working Group has assumed an additional 10 per cent employment in the production, continuing and construction phases, i.e., a little more than one million persons. Even with the most optimistic estimate of additional employment generation in the agricultural sector, these would not be more than 18 million man-year units in the last year of the Fourth Five Year Plan.

2.14. We would like to repeat that we have chosen the highest possible employment coefficients available in each case. These may not be justifiable in a number of cases, if properly scrutinised. It is quite likely that there may be overlapping of the employment figures in some cases. As mentioned earlier, part of the employment generated in the construction phase, would have been of those who would otherwise have remained unemployed once their work in the earlier programmes had been completed. To that extent the construction phase figures would have been overestimates. We are also aware that in the continuing phase, the figures provided under minor irrigation, soil conservation and rural roads may not actually materialise as the State Governments tend to divert the funds from the maintenance stage to other programmes*. In regard to the new employment potential in the production phase, we have assumed that all the additional land brought under irrigation would be put under cultivation of the new high-yielding and hybrid varieties of cereals, other than rice, and cotton. The area under these varieties would therefore be much higher than that

*Please also see Chapter IV, paragraph 4·8.

envisioned under the Fourth Five Plan. The additional employment potential, in the production phase is, to that extent, an overestimate. Again, the Group has assumed that the target of the Fourth Five Year Plan programmes under agriculture and the allied sectors would be achieved by 1973-74. The Mid-term Appraisal of the Fourth Five Year Plan¹, however, indicates inadequate achievements of a number of the programmes by the third year of the Plan. One of the major employment-oriented construction programmes which has lagged behind is that of soil conservation and land reclamation. These shortfalls in the construction programmes will affect the estimated employment potential not only at the construction phase but also, as a consequence, in the continuing and production phases. The annual additional employment potential of 18 million man-year units in the agriculture and allied sectors estimated by us, is very likely to be an overestimation.

2.15. This figure of 18 million man-year units would just suffice to provide employment to the additions to the labour force between 1969 and 1974. In the previous Chapter we had estimated that in 1969, that is, on the eve of the Fourth Five Year Plan, the number of unemployed in the rural areas was anywhere between 9·12 and 22·52 million persons. The Fourth Plan programmes would thus have made hardly any dent upon this problem of the backlog of unemployment. Instead, a further large body of new entrants would join the labour force, thereby aggravating the problem of underemployment in the rural areas. There is every likelihood of the unemployment situation worsening in the rural areas by the end of the Fourth Five Year Plan. There is, therefore, need for a radical rethinking on the creation of employment opportunities for the unemployed under employed in the rural areas.

नियमित बजार

TABLE 2.1
Fourth Plan Outlays for Agriculture and Allied Sectors

Heads of Development	Outlay 1969-74		
	Public Sector (Rupees in crores)	Private Sector	Total
1	2	3	4
Agricultural production Programmes, Research and Education.	494·18	196·00*	690·18
Drought Prone Area Programme	70·00		70·00
SFDA/MFAL	115·00	300·00	415·00
Minor Irrigation	519·67	1,391·00	1,910·67
Soil Conservation and Land Reclamation	157·24	3·00*	160·24
Area Development	38·11	57·00*	95·11
Forestry	90·96		90·96
Animal Husbandry	93·93	9·00*	102·93

*The Fourth Plan Mid-term Appraisal, Volume II, Planning Commission, Government of India, December 1971, Chapters 10 and 11.

*Estimated by the Working Group.

TABLE 2.1—Contd.

	1	2	3	4
Dairying and Milk Supply . . .	140·71	7·00*	147·71	
Fisheries	82·71	13·00*	95·71	
Cooperation	175·80		175·80	
Community Development and Panchayati Raj.	114·97		114·97	
Crash Scheme or Rural Employment .	100·00		100·00	
Warehousing Storage and Marketing .	93·98	65·00*	158·98	
Nutrition, Food Processing and Technology.	18·60		18·60	
Buffer Stock Operations . . .	255·00		255·00	
Central Support to Financial Institutions	324·00		324·00	
TOTAL	2,884·86	2,041·00	4,925·86	
Major and Medium Irrigation . .	951·45		951·45	
Flood Control	142·77		142·77	
Rural Roads	153·00		153·00	
GRAND TOTAL	4,132·08	2,041·00	6,173·08	

NOTE : Private Sector Outlay in Col.(3) includes investment through institutional sources (Rs. 1,540 crores) and the farmers' own investment (Rs. 500 crores). The latter figures are only rough estimates.

SOURCE : Planning Commission.

TABLE 2.2
Generation of Employment under Certain Development Programmes during the Fourth Five Year Plan—Construction Phase

Heads of Development	Outlay 1969-74 (Rupees in Crores)	Norms of Man-days @ Rupees one Crore	Employment Generation (Million Man days)
1	2	3	4
Agricultural Production Programmes Research and Education.	690·18	6,78,600	468·36
Area Development	95·11	6,78,600	64·54
Dairying and Milk Supply	147·71	2,28,375	33·73
Cooperation	175·80	91,350	16·06
Community Development and Panchayati Raj.	114·97	2,38,815	27·46
Warehousing, Storage and Marketing .	158·98	91,350	14·52
Flood Control	142·77	1,04,400	14·93
Major and Medium Irrigation . .	951·45	9,13,500	869·15
Rural Roads	153·00	16,38,900	250·75

NOTES : 1. Norms for employment based on the construction phase norms in *Employment Trends and Prospects—A Statewise Analysis*. Labour and Employment Division, Planning Commission, November, 1960.

2. Norms worked out by projecting the all commodities index of wholesale prices for the periods 1972-73 and 1973-74 by computing a simple growth rate for the period 1961-72 and averaging the index for 1969-74. The norms given for 1960-61 in the above mentioned publication were revised downward on the basis of the average 1969-74 index.

TABLE 2.3
Generation of employment under Minor Irrigation Programmes during the Fourth Five Year Plan—Construction Phase

Item	Total Expenditure per annum (Rupees in Crores)	Potential for Employment			Employment Generation				
		Unskilled Labour	Skilled Labour	Cost of Rs. 2.50 per man-day	Outlay (Rupees in Crores)	Unskilled (Million Man-days)	Skilled (Million Man-days)	Total (Million Man-days)	
1	2	3	4	5	6	7	8	9	10
Dugwells	50.00	22.50	7.50	90.00	10.00	367.50	661.5	73.5	735.0
Improvement of Dugwells	10.00	2.50	1.50	10.00	2.00	73.50	73.5	14.7	88.2
Pumpsets/Persian Wheecls	65.00	9.75	6.50	39.00	8.60	477.75	286.6	63.7	350.3
Tubewells Private and State	80.00	16.00	8.00	64.00	10.60	588.00	470.4	78.4	548.8
Surface Flow Works	45.00	29.25	4.50	117.00	6.00	330.75	654.2	44.4	698.6
Lift Irrigation	10.00	2.00	1.00	8.00	1.30	73.50	58.8	9.8	68.6
Total	260.00	82.20	29.00	328.00	38.50	1,911.00	2,205.0	284.5	2,489.5

SOURCE : Ministry of Agriculture.

TABLE 2.4

Generation of Employment under Soil Conservation and Land Reclamation Programmes during the Fourth Five Year Plan—Construction Phase

	Target 1969-74	Employment Generation		
		(000 hectares)	Skilled @0.04 man-days per hectare (Million)	Unskilled @400 man-days per hectare Man-days)
Soil Conservation	.	5,650	0.23	2,260 2,260·23
Land Reclamation	.	1,000	0.04	400 400·04
TOTAL	.	6,650	0.27	2,660 2,660·27

SOURCE : Ministry of Agriculture.

TABLE 2.5

Generation of Employment Under Forestry Programmes During the Fourth Five Year Plan—Construction Phase

Name of the Scheme	Outlay 1969-74 (Rupees in Lakhs)	Employment Generation (Million Man-days)
Plantation of Quick Growing Species	1,729·54	43·24
Economic Plantations for Industrial and Commercial uses	2,145·10	53·63
Rehabilitation of Degraded Forests	299·59	7·49
Farm Forestry-cum-Fuelwood Plantation	451·82	11·29
Development of Minor Forest Products	151·53	3·79
Communications	851·40	21·29
Consolidation of Forests including Survey and Demarcation.	279·31	0·69
Development of Pastures and Grazing	72·85	1·82
Training of Staff	151·78	0·05
Timber Operations	639·87	18·13
Nature Conservation	352·18	0·55
Others	1,943·03	2·02
TOTAL	9,096·00	163·99

Sources for Employment Norms :

1. Inspector General of Forests, Ministry of Agriculture.
2. Employment Trends and Prospects—A Statewise Analysis, Labour and Employment Division, Planning Commission, November 1960.

TABLE 2·6

Generation of Employment under Fisheries Programmes during the Fourth Five Year Plan—Construction Phase

Name of the Scheme	Outlay 1969-74 (Rupee in Crores)	Likely Mar power Gen eration (Persons)
1	2	3 ..
Deep Sea Fishing Station (Including Subsidy Scheme)	2·50 .	8,950
Indo-Norwegian Project	2·30	200
Central Institute of Fisheries, Education and Regional Training Centre.	0·87	25
Central Institute of Fisheries Operatives	1·47	33
Major Harbours	6·00	4,050
Transport of Fish by Rail	0·50	50
Pelagic Fisheries	0·34	30
Pilot Scheme on Sunderbans	0·20	411
Extension	0·05	9
Administration, Inland Fisheries Survey	0·14	100
Cooperatives and Cooperations	0·27	95
Centrally Sponsored Scheme : Minor Harbours	6·70	1,200
Mechanisation Programme*	19·00	55,000
Other Schemes**	41·87	14,910
TOTAL		82·71
85,063		

*States and Union Territories Schemes.

**Includes boat building, motorised transport, marketing, net making, fish processing

SOURCE : Fisheries Division, Department of Agriculture.

TABLE 2.7

Generation of Employment under Animal Husbandry Programmes during the Fourth Five Year Plan—Construction Phase

Development Programmes	Likely Manpower Generation (Persons)		
	Skilled	Un-skilled	Total
1	2	3	4
I. Cattle Development :			
(a) Intensive Cattle Development Projects . . .	10,720	6,700	17,420
(b) Establishment of Key Village Blocks . . .	1,365	910	2,275
(c) Veterinary Hospital and Dispensaries . . .	2,616	6,104	8,720
(d) Veterinary Check Posts . . .	256	128	384
II. Poultry Development :			
(a) Intensive Egg and Poultry Production-cum-Marketing Centres.	363	627	990
(b) Poultry Development Programmes . . .			
III. Sheep Breeding :			
(a) Central Sheep Breeding Farm, Hissar . . .	46	31	77
(b) Centrally Sponsored Farms (7) . . .	385	126	511
(c) Establishment of Sheep Breeding Farms (11) .	154	99	253
(d) Reorganisation of Sheep Breeding Farms . .			
(e) Sheep and Wool Extension Centres :			
(i) Supervisory Units (8)	32	24	56
(ii) Extension Centres (64)	192	192	384
(f) Expansion of Sheep and Wool Centres (50) .	..	..	..
(g) Sheep Shearing, Wool Grading and Marketing Centres :			
(i) Wool Grading and Marketing Centres (14)	210	84	294
(ii) Shearing Units (8 States) :			
(a) Mobile (1 per State)	32	..	32
(b) Stationary (3 per State)	96	..	96
Total Manpower Requirements	1,147	556	1,703

SOURCE : Ministry of Agriculture.

TABLE 2·8

Generation of Employment under Certain Development Programmes during the Fourth Five Year Plan—Continuing Phase

Heads of Development	Outlay 1969-74 (Rupees in Crores)	Norms of Man-days @ Rupees One Crore	Employ- ment Generation (Million Man-days)
1	2	3	4
Agricultural Production Programmes, Research and Education.	690·18	1,63,125	112·59
Minor Irrigation	1,910·67	4,17,600	797·90
Soil Conservation and Land Reclamation	160·24	1,56,600	25·09
Area Development	95·11	2,21,850	21·10
Animal Husbandry	102·93	2,34,900	24·18
Dairying and Milk Supply	147·71	2,18,805	32·32
Fisheries	95·71	2,82,000	26·99
Forestry	90·96	1,69,650	15·43
Warehousing Storage and Marketing	158·98	1,33,110	21·16
Cooperation	175·80	1,34,415	23·63
Community Development and Panchayati Raj	114·97	5,22,000	60·01
Flood Control	142·77	46,936	6·71
Major and Medium Irrigation	951·45	26,100	24·82
Rural Roads	153·00	13,05,000	202·28

NOTES : 1. Norms for employment based on the continuing phase norms in *Employment Trends and Prospects—A Statewise Analysis*, Labour and Employment Division, Planning Commission, November 1960.

2. Norms worked out for 1969-74 by projecting the all commodities index of wholesale prices for the periods 1972-73 and 1973-74 by computing a simple growth rate for the period 1961-72 and averaging the index for 1969-74. The norms given for 1960-61 in the above mentioned publication were revised downward on the basis of the average 1969-74 index.

TABLE 2.9

All-India Increase in Gross Cropped Area by 1973-74 : Likely Generation of Employment

Crop	1968-69				1973-74				Total Labour Days Employed				Total Labour Days Employed			
	Gross Cropped Area	Gross Dry Area	Irriga- ted Area	Labour days per hectare	Total Labour Days Employed				Gross Irriga- ted Area	Gross Dry Area	Total Labour Days Employed				Additional Employ- ment in 1973-74 (14)— (9)	
					Dry	Irriga- ted	Total	Dry			Dry	Irriga- ted	Total	Dry	Irriga- ted	
(‘000 hectares)																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Rice	35,749	13,462	22,287	116.32	94.57	1,566	2,108	3,674	17,700	22,287	2,044	2,108	4,152	4,152	47	
Jowar	17,625	774	16,851	63.35	29.71	49	501	550	1,022	16,851	74	501	575	575	25	
Bajra	12,458	504	11,954	66.73	49.52	34	592	626	665	11,954	60	592	652	652	26	
Maize	5,584	1,096	4,488	59.54	50.40	65	226	291	1,447	4,488	125	226	351	351	60	
Ragi	2,474	390	2,084	133.42	95.05	52	198	250	515	2,084	69	198	267	267	17	
Wheat	15,614	7,756	7,858	104.06	74.70	811	587	1,398	10,238	7,858	880	587	1,467	1,467	69	
Barley	2,817	1,489	1,328	61.76	57.99	92	77	169	1,965	1,328	121	77	198	198	29	
Total Pulses	21,975	2,136	19,839	50.37	37.84	108	751	859	2,820	19,839	142	751	893	893	34	

TABLE 2.9—Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Foodgrains@ .	1,19,272	27,747	91,525	100·08	55·06	2,777	5,040	7,817	36,626	91,525	3,561	5,040	8,601	784	
Sugarcane .	2,563	1,958	605	329·09	206·39	644	125	769	2,585	605	851	125	976	207	
Total Oilseeds .	13,921	655	13,266	142·86	117·30	94	1,556	1,650	865	13,266	124	1,556	1,680	30	
Cotton .	7,515	1,234	6,281	84·08	70·47	104	442	546	1,629	6,281	137	442	579	33	
Jute .	725	725	188,12	..	..	136	..	136	957	..	180	..	180	44
Tobacco .	466	74	392	73·36	68·77	5	27	32	97	392	7	27	34	2	
Plantation Crops* .	770	350	420	1·75	1·75	1	1	2	464	420	1	1	2	..	
Total .	1,45,232	32,743	1,12,489	114·83	63·93	3,761	7,191	10,952	43,223	1,12,489	4,861	7,191	12,052	1,054	
All Crops .	1,59,160	35,030	1,24,130	114·83	63·93	4,022	7,936	11,958	46,487	1,24,130	5,196	7,936	13,132	1,174	

@Total Foodgrains include Rice, Jowar, Bajra, Maize, Ragi, Wheat, Barley, Minor Millets and Total Pulses.

*Plantation Crops include Tea, Coffee, Rubber and Cinchona.

TABLE 2·10

Employment Generation During the Fourth Five Year Plan—Rural Sector

Heads of Development	Construction Phase (Million)	Construction Phase	Continuing Phase	Production Phase
		1	2	3	4
Agricultural Production Programmes, Research and Education.	468·4		112·6	
Drought Prone Area Programme	168·0		..	
SFDA/MFAL			45·1	
Minor Irrigation	2,489·5		798·0	
Soil Conservation and Land Reclamation	2,660·3		25·1	
Area Development	64·5		21·1	
Forestry	164·0		15·4	
Animal Husbandry	9·4		24·2	
Dairying and Milk Supply	33·7		32·3	
Fisheries	24·8		27·0	
Cooperation	16·1		23·6	
Community Development and Panchayati Raj	27·5		60·0	
Crash Scheme for Rural Employment	177·5		..	
Warehousing Storage and Marketing	14·5		21·2	
Nutrition, Food Processing and Technology				
Buffer Stock Operations				
Central Support to Financial Institutions				
Major and Medium Irrigation	869·2		24·8	
Flood Control	14·9		6·7	
Rural Roads	250·8		202·3	
TOTAL . .	7,453·1		1,439·4	1,174·0
Employment @ 273 days per year (million persons)	27·30		5·27	4·30

NOTE : This table relates to the employment counterpart of the outlays at table 2·1.

CHAPTER III

PROGRAMMES FOR FINDING WORK FOR THE RURAL UNEMPLOYED DURING 1974—79

3.1. The terms of reference of the Working Group require it to suggest suitable strategies for employment generation in both the short term and the long-term. We have already discussed in the previous Chapter, the Plan programmes for development in the rural areas which would be able to provide new employment, at the most, for 18 million man-year units in the last year of the Fourth Five Year Plan. If a Statewise break-up of the Plan outlays of some of the major programmes in the rural areas is made, one finds that the largest proportion of employment that would be generated in the construction phase in the Fourth Plan would be in Maharashtra, followed by Uttar Pradesh. Even in these two States, the most important heads of development are those of minor irrigation and soil conservation (Table 3.1).

3.2. A scrutiny of the State Plan outlays and the employment generated reveals that in some States which are prone to drought or uncertain rainfall conditions, the greatest stress has been laid on irrigation and soil conservation programmes. Thus, out of a total employment generation in the construction phase of 230 million man-days in Bihar, a third is under each of minor irrigation and major/medium irrigation and flood control programmes; a little more than a quarter of the employment would be provided by soil conservation programmes. In Gujarat, out of a total employment of 311 million man-days likely to be generated, half would be under programmes of soil conservation and a third under major, medium and minor irrigation programmes. Similarly, in Haryana, soil conservation programmes constitute half of the employment likely to be generated in the construction phase. Nearly two-thirds of the employment to be generated in Madhya Pradesh would be under soil conservation programmes. In Mysore also, half of the employment would be generated through soil conservation programmes and one-third from major, medium and minor irrigation programmes. In Rajasthan, about two-thirds of the employment would be generated from the irrigation programmes. It would thus be seen that the States with problems of inadequate rainfall and shortage of irrigation supplies laid the greatest stress on soil conservation practices and irrigation works. That irrigation and soil conservation are prerequisites to any improvement in agricultural production has thus been recognised. These schemes, in turn, would have led to increased employment in the production phase.

3.3. In the overall, however, the provision of employment of 18 million man-year units during the Fourth Plan, would leave a backlog of unemployed at the beginning of the Fifth Plan. The total number

of unemployed man-year units in 1974 would vary between a minimum of 7·90 million and a maximum of 21·30 million. We had mentioned in an earlier Chapter that approximately 17·94 million new entrants would require full-time employment during 1974-79. Adding these new entrants to the labour force who are to be found employment, the programmes of development during the Fifth Five Year Plan would have to aim at providing full-time work by 1979 for a minimum of 25·84 million persons or a maximum of 39·24 million persons.

3.4. These estimates would indicate the overall problem of rural unemployment which would need to be tackled during the Fifth Plan period. The problem would differ from State to State depending upon the levels of agricultural development, the availability of rural jobs and other factors. It is difficult, however, to gauge the extent of the problem of unemployment in the different States. Some results of the employment and unemployment situation of the weaker sections in the rural areas collected during the 25th Round of the National Sample Survey (July 1970—June 1971), for the non-cultivating wage-earner households and the lowest 10 per cent of the small cultivators' households have been recently released. If these results are any guide, the problem of unemployment (i.e. those seeking and/or available for work in the total time disposition of the households) in the age group 15-59 years was most acute in Kerala, followed by Tamil Nadu, Bihar, Andhra Pradesh, Gujarat and Maharashtra¹.

3.5. The behavioural pattern of all those seeking work would also not be the same. A large proportion of the small cultivators may be unwilling to work outside their farms. A segment of the rural labour force, would be on the look out for employment for a part of the year only. Some women for example—might like to find employment within the villages themselves. Still others, would offer themselves for full time employment. A percentage may be prepared to go out of the villages if full time employment at specific rates of wages were available. If full-time employment could be found for a part of the labour force, this would relieve the problem of underemployment of some of the others in the rural areas. With the adoption of the new levels of technology, some would find additional employment in agriculture itself. For the bulk, however, employment would need to be found under various works programmes in the rural areas.

3.6. The Group feels that the approach to the programmes of development for the rural areas must be employment-oriented for the next Plan period. We had examined the employment potentials of the rural development programmes in the Fourth Five Year Plan in the previous Chapter. In our view, the programmes of irrigation works, soil conservation, land reclamation and rural roads would be the most labour intensive and productive sources of employment. These programmes would bring in their wake, larger productive capacity and

¹NSS 25th Round : July 1970—June 1971, *Tables on Employment and Unemployment Situation in Rural Areas*, Cabinet Secretariat, Government of India, (mimeographed brochures).

employment in agriculture and open up avenues in the rural areas of further development. We are of the view that massive rural works, encompassing all these programmes, would be the only answer to the problems of unemployment and underemployment in the rural areas.

Minor Irrigation Programmes as Generators of Employment

3.7. In our opinion the programmes which would provide the maximum opportunities for rural employment, is that of minor irrigation. The minor irrigation programmes generate the largest amount of employment in the construction as well as in the maintenance phases. It has its impact on the cropping pattern in the production phase also. The introduction of irrigation in agriculture enhances employment in three ways. In the first place, it increases the intensity of labour for most of the crops. Table 2·9 in the previous Chapter indicates that apart from sugarcane, the most important crop where the labour days per hectare rise with the introduction of irrigation is rice—from an average of 94·57 man-days per hectare to an average of 116·32 man-days per hectare—a rise of 23 per cent. The Table also shows that foodgrains occupy three-fourths of the gross cropped and irrigated area in the country. The labour days of employment for every irrigated hectare was on an average over 80 per cent more than in the non-irrigated areas (100·08 and 55·06 man days per hectare, respectively). For every hectare increase in the irrigated area under foodgrains, therefore, there would be an increase, on an average, of 80 per cent in the employment provided.

3.8. Secondly, the introduction of irrigation would aid in a change in the cropping pattern in the regions concerned. Thus, for example, the farmer could change from the cultivation of low yielding varieties of millets to the high yielding higher priced grains like rice and wheat. This change would increase the extent of labour employed per hectare on the farms while the labour days per hectare for irrigated jowar would be, on an average, around 63 man-days, that under rice would be 116 man-days and wheat 104 man-days. With the introduction of irrigation, the switch-over from the cultivation of jowar to that of rice in the kharif season or wheat in the rabi season, would enhance employment by 84 and 65 per cent, respectively.

3.9. Lastly, with irrigation, the farmers can intensify their cultural practices through multiple cropping. This would entail cultivation of early maturing high yielding varieties of crops, the maintenance of soil fertility, the judicious use of fertilisers, tillage practices, manures and water. All these practices would be labour intensive, and at the same time, contribute to greater production and larger incomes. Research experiments conducted by the Indian Agricultural Research Institute (IARI) have shown that with the intensity of cropping rising from 100 to 400 per cent, the employment requirements would rise from 85 to 432 man-days per hectare and production in terms of foodgrains from 5 to 14 tonnes per hectare*.

*Recent Research in Multiple Cropping. Indian Agricultural Research Institute, New Delhi, 1972, pages 115—121.

3.10. Minor irrigation works are not only employment-oriented but have the added advantage of being undertaken in and around the existing farm sites. The construction work could be taken up during the slack season, thereby providing employment to the underemployed in the rural areas. Further, where minor irrigation is feasible, the cost of construction of works is likely to be lower than those of major and medium irrigation works. While the development of surface water by the construction of dams, reservoirs, canals and channels takes a long time, the development of groundwater resources, by installing deep and shallow tubewells, dugwells, persian wheels, etc.; takes the least amount of time, has less conveyance losses and results in quick production benefits. Again, these programmes have attracted investment by farmers from their own resources or through loans from institutional sources.

Scope for Minor Irrigation Works

3.11. The scope for the expansion of irrigation facilities is quite large. As against a likely gross irrigated area of 46 million hectares by 1973-74, the ultimate utilisable surface and groundwater resources in the country are reported to be capable of irrigating an area of over 100 million hectares (gross). Of this area, more than half would be from major and medium irrigation projects and about 46 million hectares from minor irrigation programmes. By the end of the Fourth Five Year Plan, minor irrigation programmes would have covered an area of about 26 million hectares. A substantial area, 20 million hectares, of both ground and surface water resources would still remain to be completed. If minor irrigation works are taken up over an area of 15 million hectares during 1974-79, it would provide about 17 million man-year units of employment in the construction phase.

3.12. There is, therefore, a potential for the expansion of minor irrigation works during the Fifth Plan period. Such expansion would not, however, be uniform in all the States, but would depend upon the availability of groundwater as well as the extent and distribution of rainfall in different parts of the country. Development of minor irrigation programmes, especially groundwater, is largest in Uttar Pradesh where there is a potential for expansion over an area of 4.53 million hectares. In Andhra Pradesh, there is scope for groundwater expansion over an area of 1.33 million hectares and of surface water over 1.15 million hectares. The potential for further expansion of minor irrigation resources (both surface and groundwater) is quite large in Bihar (1.91 million hectares), and around 1.5 million hectares each in Madhya Pradesh, Mysore, Orissa and West Bengal. In Orissa, the major programme of exploitation would be that of surface water development. The least scope for expansion of water resources through minor irrigation works is in Jammu and Kashmir and Haryana followed by Tamil Nadu, Rajasthan and Kerala (Table 3.2).

3.13. The potential for the expansion of minor irrigation works is the least in those States where their requirements are the largest. As compared to the likely gross cropped area in 1973-74, the scope for further expansion of irrigated area through minor works is less than 10 per cent. in the States of Rajasthan (3·41%), Maharashtra (3·74%), Haryana (6·36%), Tamil Nadu (6·62%), Gujarat (6·95%) and Madhya Pradesh (7·31%). Further expansion of minor irrigation works will cover less than 4 per cent. of the gross dry area likely to be prevalent in Rajasthan and Maharashtra in 1973-74 and less than 9 per cent. in Madhya Pradesh and Gujarat. At the same time, these are the States which are prone to drought and need additional water supply. Major and medium irrigation works may provide additional water to some of these States. But the ultimate availability of water from all sources will remain less than 40 per cent. of the gross cropped area in the States of Maharashtra (22·67%), Gujarat (36·18%), Mysore (37·37%), Rajasthan (37·57%) and Madhya Pradesh (39·50%) (Table 3.3).

Survey of Groundwater Resources

3.14. We feel, however, that there is particular need for further work in surveying the availability of groundwater resources, especially in the arid and drought prone regions, in the country. An instance is the finding of an underground sea of sweet water covering an area of about 7,500 kilometres (the "Lathi Formation") in Jaisalmer district in Rajasthan. The exploitation of this water basin would be able to transform one of the driest backward districts in the country to prosperity. We are aware of the other problem of the fall in the groundwater level that has arisen in some areas as a result of the proliferation of tubewells and dugwells. Even underground water is not an inexhaustible source of water supply. Clusters of wells and tubewells without proper spacing would be the main cause of depletion of underground water supply. Studies undertaken by the College of Agricultural Engineering, Punjab, for example, suggested that deep (75 metres or more) tubewells with turbine pump installations should not be closer than about 500 metres; medium tubewells (25 metres in depth with centrifugal pump installations) should not be spaced closer than 200 metres; and the spacing for ordinary wells should be about 30 metres or more³. Some States have already taken control measures to prevent the construction of new wells without sufficient technical data. The Group would, therefore, advocate speedy arrangements for survey and planning of the groundwater resources so that the programmes of construction of minor irrigation works can go ahead expeditiously.

3.15. We have mentioned earlier in this Chapter that irrigation brings in its wake labour intensity in the cultivation of the same crop, a change in the cropping pattern and an increase in the intensity of cultivation. But in view of the scarce availability of water in the country, care would need to be taken for the optimum utilisation of the water

*The Economic Times, March 4, 1972.

resources without much wastage. Experiments reveal that the productivity of a given quantity of water could be increased substantially, if proper soil and water management practices were followed. These practices would include land shaping and land levelling, crop planning based on soil characteristics, water supply to plants only at the critical times, reduction of conveyance and application losses and drainage of excess water from the fields. Although farmers do have some information about these experiments, there is need for intensifying extension work to educate them on the improved practices.

3.16. The appropriate soil and water management of irrigated land would require soil conservation and land reclamation including provision of field channels and drainage facilities, land levelling and shaping, afforestation, etc. The nature of the works would, however, differ from region to region. In some areas, as in Orissa, the labour intensive programmes would be those of constructing field channels. In the Deccan Plateau, comprising parts of Andhra Pradesh, Maharashtra, Mysore and Tamil Nadu, the requirements may be for desilting and renovation of irrigation tanks. Work on these tanks could be undertaken in the off-season. The silt removed in the process of desilting and deepening of tanks could be utilised for bringing additional land under cultivation. Renovation of tanks would, in addition to improving their water holding capacity, help in maintaining the water table of nearby irrigation wells fairly high. In the coastal areas, the land reclamation programmes may entail the construction of embankments to keep away sea water. In parts of Assam, Bihar, Orissa and West Bengal, which are frequently afflicted by floods causing damage to crops, there would be need to undertake flood control measures like the strengthening of embankments, the diversion of rivers, the construction of drainage channels, and the raising of villages above the floods levels. However much irrigation may spared, there would still be areas on which the increase in yields would be possible only through contour bunding, soil conservation, land levelling and other measures. Catchment areas of rivers would require afforestation for prolonging the life of reservoirs augmenting the supply of timber and fuel, moderating floods and checking the erosion of land. Areas, as in Punjab and Haryana, where the rise in the sub-soil water level has made some areas go out of cultivation through salinity and alkalinity of the soil, would need special measures of reclamation.

Scope for Programmes of soil Conservation and Land Reclamation

3.17. We have seen in Chapter II, that the second most employment-oriented work at the construction phase is that of soil conservation and land reclamation. These programmes involve at the initial stages, labour intensive engineering and construction works which are also productive by nature. The cost of conservation and reclamation of land for agricultural purposes is estimated at present at around Rs. 1,000 per hectare. At the same time, the programme can help generate employment in the construction phase, at the rate of 400 man-days per hectare

of unskilled labour and 0.04 man-days of skilled labour. According to the Waste Land Survey (Uppal) Committee (appointed in 1959), about 135 million hectares of land required treatment for soil conservation in the country. We understand that of this area, about 15 million hectares have been treated by now. There is, therefore, scope for undertaking soil conservation measures over an area of 120 million hectares. Further, of the waste lands available in the country, nearly 20 million hectares can be reclaimed, half for agriculture and half for grass lands and village fuel lots. If soil conservation works were taken up over an area of 15 million hectares, and land reclamation over 5 million hectares, during the years 1974-79, these programmes would help generate employment for about 32.51 million man-year units in the construction phase.

Scope for Multiple Cropping

3.18. We have mentioned the employment opportunities that would be available in the construction phase of the programmes of minor irrigation, soil conservation and land reclamation. These programmes would provide opportunities for additional employment in the production phase by intensification of agricultural operations. With the availability of short-term high yielding varieties of crops, irrigation, fertilisers, herbicides and plant protection measures, it may be possible to maintain an average sized family on a small farm holding and provide near full-time employment to its members. If irrigated and sown area in the country under different rainfall conditions is any guide, there is scope for intensifying agricultural operations in some regions in the country.

Irrigated and Sown Area : 1967-68

('000 hectares)

Areas	Irrigated Area			Sown Area		
	Gross	Net	Difference	Gross	Net	Difference
1	2	3	4	5	6	7
High Rainfall Areas (1150 mm and above).	8,207	7,148	1,059	50,572	42,127	8,445
Medium Rainfall Areas (750—1150 mm).	13,418	11,219	2,199	58,634	56,167	2,467
Low Rainfall Areas (up to 750 mm).	11,389	8,724	2,665	53,572	47,457	6,415
All Areas . . .	33,014	27,091	5,923	1,63,078	1,45,751	17,327

SOURCE : Directorate of Economics and Statistics, Ministry of Agriculture.

With a net irrigated area of 27.09 million hectares, the area sown more than once adds up to only 17.33 million hectares. We would like to point out that multiple cropping is not necessarily feasible in high rainfall areas without supplementary irrigation. Similarly, not all double-cropped area is irrigated; a large area consists of short duration catch crops under different rainfall conditions. The expansion of irrigation programmes, especially of minor irrigation, would create the potential for intensifying cultivation by multiple cropping.

3.19. The main advantage of multiple cropping over traditional agriculture would lie in obtaining greater production from the same piece of land. Intensive agriculture would require the maintenance of soil fertility at a higher level by the judicious use of water, fertilisers and tillage practices. All these practices would entail greater employment, increase in agricultural production and greater incomes from the land. According to research scientists there is great scope for expansion of multiple cropping in the next few years⁴.

3.20. We are aware that the scope for expansion of multiple cropping would differ from region within the country itself. It should be possible that in areas which have assured irrigation water, there is scope for introduction of multiple cropping. However, the labour employment position with regard to the different types of multiple cropping have so far been derived largely at the experiment stations in different parts of the country. For example, experiments conducted at the Indian Agricultural Research Institute in Delhi do not include rice in their rotations as it is not an important crop in and around Delhi^{4(b)}. On the other hand, the gross cropped area under rice constitutes over one-fifth of the total cropped area in the country. Even in the major wheat growing States of Punjab and Haryana, rice is gaining an importance as a kharif crop. As mentioned earlier, rice is one of the most labour intensive crop among the cereals. Experiments undertaken on crop rotations in the research institutions should be extended on a sufficient scale to cultivators' fields in the different parts of the country. It may be noted here that while the cultivation of crops has been intensified in some pockets of the different States, there is no appreciable increase in the multiple cropped area over the country as a whole. Even if an additional 9 million hectares are brought under multiple cropping in the next five years, the programmes would aid in expanding employment opportunities in those areas (Table 3.4).

Problems of Mechanisation

3.21. In areas where multiple cropping programmes are taken up, with three or four crops grown in the year, some farmers have

⁴Technical Report of the Division of Agricultural Economics and Statistics for the year 1970-71 by J. S. Garg, Professor and Head, U. P. Institute of Agricultural Sciences, Kannauj pages 42-45.

^{4(b)}Recent Research on Multiple Cropping, Indian Agricultural Research Institute, New Delhi, 1972, pages 115-121.

resorted to mechanisation of some of the agricultural operations. This has become necessary in order to complete in time, some of the agricultural operations like ploughing of land, sowing, harvesting and threshing. However, the evidence available with the Working Group as to the effects of such mechanisation on employment runs both ways. In some areas with mechanisation, as in Punjab, there has been an increase in the intensity of cultivation and, therefore, of employment opportunities. Some studies, however, have revealed displacement of labour as due to mechanisation. The effect of introduction of mechanisation in agriculture on labour employment could vary according to areas. The Working Group would, therefore, suggest that more field research is undertaken to decide upon the optimum rates and kinds of mechanisation for different agro-climatic considerations involving varying cropping patterns. At present, not enough data is available of the type of machinery and the level of mechanisation which could be undertaken in agriculture in this country. Even where multiple cropping of rice is undertaken in a year, opportunities for mechanisation could arise principally in two ways : one, in the preparation of the land and two, in the threshing and cleaning of the produce. If, however, the small farmers need help and the research studies undertaken point out to increases in productivity, as well as employment opportunities, with the introduction of farm machinery, the Group feels that customs service should be provided for that type of machinery which would be required by the small farmers. Such services would give employment to engineering and agricultural graduates and diploma holders. It is, therefore, no possible, at present, to lay down any general lines as to whether farm mechanisation would be favourable to employment or not.



Employment Generation in the Low Rainfall Areas

3.22. The technological problems in the low rainfall areas in the country would be quite different from those discussed above. While the scope for irrigation is fairly high in some regions, it is limited in a large part of the low rainfall areas of the country, as in parts of Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Mysore, Rajasthan and Uttar Pradesh. The low rainfall regions constitute about 36 per cent of the net sown areas in the country and cover nearly 47 million hectares of culturable land. It is here that the bulk of the coarse cereals of the country is produced. The hectare-yields of almost all the crops grown in these regions are low compared to the agriculturally developed regions of the country. The problem in these areas is of a socio-economic dimension. With a large number of under-employed, these dry areas create glaring disparities in the income and living standards as compared to the irrigated and high rainfall areas. Such disparities get further accentuated when recent advances in agricultural technology, which are more suited to the irrigated areas, are practised there (Table 3:4).

3.23. Apart from the limitations imposed by low and uncertain soil moisture conditions, these areas suffer many other limitations, one of which is the non-availability of suitable varieties of crops. Two programmes should therefore prove critical for these areas : one, techniques for conservation and economic use of the available water and soil moisture and two, the evolution of a suitable cropping pattern for the particular conditions. We are aware of the work that has been planned for the Fourth Five Year Plan : the all-India Coordinated Research Project on Dry Farming. This scheme has for its objectives the testing of the new techniques on soil management, water harvesting, sprinkler irrigation, introduction of special agronomic practices, etc. The scheme has just been started and has still to make an adequate impact on the problems. With regard to the problem of cropping pattern, existing research has to be intensified and this should be given priority. In the choice of crops, those which have a high labour component should receive special attention. The crops to be tested could well include special leguminous crops.

3.24. In a number of these drought prone areas, the severe drought conditions that occur from time to time, bring in their wake various scarcity relief measures. These, however, are for short duration to tide over an immediate scarcity period. The works under these relief measures are temporary by nature and do not contribute generally to mitigating the severity of future droughts. The Group would like to lay stress on important long-term programmes, as in the case of conservation of moisture and development of cropping pattern programmes, taken up in selected blocks in 54 chronically drought prone districts in the country during the Fourth Plan (DPAP). The programme should be extended over a wider area so as to overcome the problems of drought to some extent at least, during the Fifth Plan period; while direct employment would be provided to persons in the locality concerned during the time of the 'works', the potential for extending agricultural operations could also be increased.

3.25. We are aware that compared to the conditions in the irrigated areas, these programmes will not bring about any significant change in the employment and incomes position of the rural labour force in the low rainfall areas. The labour intensive capacity of the programmes would thus remain limited. Yet, some steps have to be taken to mitigate the intensity of unemployment in these areas. Supplementary sources of employment and income would also have to be thought of. Such programmes could include road construction, animal husbandry, rural housing, setting up of small industries, etc.

Employment through Construction of Rural Roads

3.26. After minor irrigation and soil conservation, road construction is the next most important employment-oriented programme, not only in the construction phase, but also in the maintenance or

continuing phase. A well dispersed network of all-weather rural roads would be a catalyst to the rural development programmes as it would help in the movement of goods and services and also open up rural areas for small industries and employment. The improvement of production in agriculture, resulting from minor irrigation and land management, would raise the demand of those engaged in agriculture for the goods and services from the urban areas. There would also be need to move the agricultural products from the rural areas for utilisation by the population in non-farm activities.

3.27. The Working Group had made an attempt to obtain information from the State Government of the number of villages which were not connected by feeder roads to the nearest highways or towns. Although we received the requisite information from only a few State Governments, the inadequacy of the length of rural roads was clearly noticeable in their replies. The number of villages without feeder roads varied between 33 and 50 per cent respectively, among the responding States. This would mean that 2·3 lakh villages were without feeder roads. If all these villages were to be connected with the nearest highways or market towns, it would entail the construction of at least 4·6 lakh kilometres of rural roads, assuming each of these villages to require a minimum of 2 kilometres of road connections. According to the findings of the Committee on Rural Roads set up by the Government of India in 1968, the rural road length which could be feasibly constructed in the next twenty years was 3·24 lakh kilometres of village roads and 2·30 lakh kilometres of district roads in the country.⁵ The Committee on Unemployment had made a mention in its Interim Report in February, 1972 of the tardy progress in the construction of rural roads during the first three years of the Fourth Five Year Plan⁶. For the programme to gain momentum, the Working Group would recommend that at least 1 lakh kilometres of rural road construction could be taken up during the period 1974-79. This work would provide employment of about 8·02 million man-year units in the construction phase (Table 3·5).

Supplementary Employment Through Animal Husbandry Programmes

3.28. In order to improve the economic position of the weaker sections of the rural labour force it would be necessary to plan for occupations which could give them a supplementary income. In some parts of the country, the small and marginal farmers and agricultural labourers keep milch cattle to supplement their incomes. But the animals in most cases are not good producers; their productive efficiency is generally inherently low and good husbandry practices

⁵Report of the Committee on Rural Roads, 1968 Ministry of Transport and Shipping (Roads Wing) Government of India.

⁶Interim Report on Short-term Measures for Employment, Committee on Unemployment Government of India, February, 1972.

in feeding and care of health are seldom followed. This is partly due to the poor economic position of the people concerned. The conditions are more precarious in the low rainfall areas. In years of drought, the marginal farmers and agricultural labourers find themselves without the resources to feed their cattle and are often forced to dispose off their animals. At the same time, there is much greater need for supplementary incomes and employment in these areas.

3.29. There is, however, great scope for the expansion of the animal husbandry programmes in view of the high income elasticity of demand for dairy and poultry products within the country. With the introduction of improved stocks, the cross-bred milch cattle and the system of stall feeding, it should be possible for small farmers and agricultural labourers without land to maintain cattle which would have been unconomic hitherto. Similarly, poultry rearing could also be encouraged in small compact units. The animal husbandry programmes of dairy, poultry, piggery and sheep rearing could, therefore, provide large employment opportunities even as subsidiary occupations. The scope for their expansion exists in the dry areas too, where fodder crops can be grown in rotation. The emphasis among small farmers could be on mixed farming and encouragement to their growing of fodder crops including lucerne. In areas where natural grazing is feasible, nomadic cattle breeders could be settled and permanent employment opportunities created for them. We understand that the Government of Rajasthan has taken up such a proposal for Jaisalmer district, where sheep and cattle rearing on a nomadic and semi-nomadic basis is the main vocation of the people.

3.30. It is imperative, however, that animal husbandry programmes designed to assist the small farmers and agricultural labourers should ensure profitability and guarantee economic returns. In the areas which are affected by frequent drought conditions, it may become necessary to provide credit on deferred payment basis and supplies of animal feed to help the weaker sections in the rural areas. There would be need to strengthen the collection, processing and distribution facilities of the products of dairy, poultry, piggery and sheep in order to assure regular income to these classes of the labour force.

Employment Potential of the Forestry Sector

3.31. An activity in the rural areas, which has great scope for expansion and for providing employment to large numbers, is the exploitation of the forest resources. The requirements for industrial wood have been estimated at 22 million cubic metres by 1975 but the actual supply from local forest resources may not reach even the targeted level of 12 million cubic metres by the end of the Fourth Plan. We understand that by 1985, the requirements for industrial

wood could rise to 50 million cubic metres and of fuel wood to about 200 million tonnes. If these requirements are met from local forest resources, it would be possible to employ 25 million persons in the forestry sector as against 3 million persons employed at present. The break up of the working force that would be required in the forestry sector by 1985, would then be as follows⁷:

	(Million Persons)
Logging, handling, transport	17
Minor Forest products	2
Plantations	1
Forestry departments	1
Forestry operations	2
Forest-based industries, including construction and installation work	2
TOTAL	25

3.32. There is also some scope for employment in the exploitation of minor oilseeds of tree origin. According to the report of the Sub-Committee on Minor Oilseeds, the availability of oilseeds, oils and employment by 1973-74 would be roughly 4.87 lakh tonnes, 1.23 lakh tonnes and 35.92 lakh man-days, respectively. There is scope for the collection of more than 6 million tonnes of oilseeds, which could provide employment for 298.86 million man-days. But there are limitations to the collection of oilseeds from the forest resources, in view of the inaccessibility of the regions, the short duration of the oil-seeds and the problems of the transport, storage, marketing, etc.⁸

3.33. Of the total forest area in the country of 75.03 million hectares, 45.68 million hectares of exploitable forest areas are in use, while 14.76 million hectares are potentially exploitable. The largest exploitable forest area is in Madhya Pradesh followed by Maharashtra, Andhra Pradesh, Orissa, Mysore, Tamil Nadu and Uttar Pradesh. Certain areas like Bastar region in Madhya Pradesh, the rain forests of Mysore and Kerala and the inaccessible inner Himalayan forests of fir and spruce, are also yet to be exploited (Table 3.6).

⁷Forestry Sector as Generator of Employment, by V. K. Seth and Dr. L. G. Sharma (mimeographed) page 9.

⁸Report of the Sub-Committee on Minor Oilseeds, 1971, Ministry of Agriculture, Government of India.

3.34. Most of the potentially productive forest resources are inaccessible due to the lack of communications. The inaccessibility of the forest areas would be the main obstacle in the way of undertaking any exploitation of forest resources. At the same time, work on forest roads would give employment not only in the construction phase, but open up the forests for secondary and tertiary employment. A target of construction of 11.22 thousand kilometres of forest roads had been envisaged for the Fourth plan period; only 3.93 thousand kilometres of forest roads are expected to have been constructed by 1971-72. Nearly two-thirds of the roads would thus have to be constructed by 1973-74. It is unlikely that these Fourth Plan target would be achieved.

3.35. Forest wood is a primary requirement as fuel wood in the rural areas. However, the farm forestry programme has not gained much momentum in the country. The Fourth Plan had envisaged the setting up of farm forestry-cum-fuelwood plantations over an area of 74.47 thousand hectares. It is expected that about 35 thousand hectares would have been planted by 1971-72, leaving more than 50 per cent of the work unfinished. As in the case of the construction of forest roads, it seems unlikely that these targets would be achieved in the last two years of the Plan. We understand that there is considerable area of grazing land overgrown by noxious weeds around villages, especially in Assam, Eastern Uttar Pradesh, Bihar, Orissa and Madhya Pradesh, which can be converted into village forests. Clearing the land of the weeds immediately after the monsoons, and utilising the area for planting quick growing trees, could well form a means of employment for the unemployed male labour force in the villages. The maintenance of the planted trees would involve continuous employment for a smaller number of persons over a period of years. Suitable schemes may have to be drawn up, and the actual employment potential estimated, before they could be initiated. The Government of Mysore have recently taken up a programme of plantation of eucalyptus trees to cover an area of about one lakh hectares over a period of ten years at an estimated cost of Rs. 6 crores.

3.36. The National Commission on Agriculture has suggested in its Report that in order to meet the country's requirements of timber and pulp wood, a total area of 7.26 lakh hectares could be clear-felled and planted between 1974 and 1980 in the inaccessible hardwood forests and the mixed forests of valuable and low quality stands at an expenditure of Rs. 242 crores⁹. This would mean an annual development of nearly 14,300 hectares of hardwood forest areas and 90,000 hectares of mixed forest area between 1974 and 1980. The work would provide employment for 450 million man-days in the construction phase. Additional employment in the secondary and tertiary

⁹Interim Report of Production Forestry-Man-Made Forests, National Commission on Agriculture, August 1972, Government of India, page 87.

sectors for transport, handling and industrial processing would be available for 377 million man-days. In order to develop 7.26 lakh hectares, forest road construction would have to be taken up over an area of 7,260 kilometres, which would provide additional employment of 10 million man-days in the construction phase. The Working Group would command these proposals of the National Commission on Agriculture, as they would help in the proper maintenance and exploitation of forest resources and provide the much needed employment at the primary, secondary and tertiary stages.

3.37. We have not exhausted the list of employment generating activities which could be taken up in the rural areas. There are other programmes of development also, which provide additional employment in some areas or the other. These would include inland and marine fisheries, rural housing, village and small-scale industries, etc. In the process of land development, programmes of consolidation of fragmented land holdings would assist in the intensification of agricultural operations. Again, the increase in agricultural production, the introduction of animal husbandry programmes and the channelling of inputs into the rural areas and their produce outside, would entail the requirements of efficient marketing and transport facilities. There would be need for the construction of marketyards and storage godowns; both these activities would be labour intensive in the construction phase. The programmes of development would also generate employment in the secondary and tertiary sectors.

Assessment of Employment in the Construction Activities

3.38. An attempt has been made by us to work out the financial implications of the construction activities discussed in this Chapter, as also the likely employment that would be generated by 1979. In this exercise, the financial outlays, for the programmes have been raised by 20 per cent, over and above the unit costs that were to be incurred during 1969-74, so that the likely increase in prices at an average rate of 4 per cent per annum is taken care of. Similarly, the employment norms have been reduced by the same order to meet the rise in wages of the labour employed. We have assumed that 15 million hectares (gross) of land will be brought under minor irrigation during the next five years. We also hope that the construction activities in soil conservation and land reclamation would be able to conserve 15 million hectares and reclaim 5 million hectares, respectively. As mentioned earlier, we have suggested that at least 1 lakh kilometres of rural roads should be built during the next five years.

On these assumptions, the likely employment that may be generated by 1979 from these programmes, as also through multiple cropping and forestry, would work out roughly as follows:

Development Programmes for the Rural Areas, 1974—79

Programme	Unit	Potential for Additional Work			Employment		
		Ultimate	1974—79	Likely Outlay 1974—79 (Rupees in Crores)	Construction Phase	Continuing Phase (Million Man-days)	Production Phase
1	2	3	4	5	6	7	8
Multiple Cropping .	million hectares.	57·0	9·0				1,100@
Minor Irrigation .	million hectares.	20·2	15·0	4,400	4,648	1,469	
Soil Conservation .	million hectares.	120·0	15·0	1,800	6,375	234	2,040
Land Reclamation .	million hectares.	10·0	5·0	600	2,500	1	
Rural Roads .	'000 kms.	400 600	100·0	200	2,190	174	
Forestry*							
(a) Clear felling Harvesting and Planting.	lakh hectares.	7·26		242	450**	377***	
					10	2	
TOTAL .				7,242	16,173	2,257	3,140
@273 man-days per year.		(million persons)			59·20	8·26	11·54

*Calculated on the basis of estimations in Recent Research in Multiple Cropping, Indian Agricultural Research Institute, New Delhi, 1972.

**Based on the suggestions in the Interim Report on Production Forestry-Man-Made Forests, National Commission on Agriculture, Government of India, August, 1972.

**Relates to employment in Felling, Harvesting, Replanting and Maintenance.

***Relates to employment in the secondary and tertiary sectors for Transport, Handling and Industrial Processing.

3.39. We have estimated that the cost of the construction activities under minor irrigation, soil conservation, land reclamation and rural roads and of the forestry programmes would work out to about Rs. 7,242 crores. Between 1974-79, 59·20 million man-year units of employment could be created at the construction phase itself. Applying the same assumptions as in Chapter II, that one-fourth of this number would be employed in the last year of the Fifth Plan, the employment generation in 1979 would work out to 14,80 million man-year units. In addition, 8·26 million man-year units of employment would be found by 1979 in the continuing phase and 11·54 million man-year units in the production phase. In all, therefore, it would be possible to create employment of about 34·60 million man-year units by the last year of the Fifth Five Year Plan. Besides, there would be supplementary employment under animal husbandry programmes, as also in the marketing, transport, processing and the other development programmes that may be taken up. We therefore feel that it is possible to overcome the problem of unemployment and underemployment if strenuous efforts are made both at the levels of organisation and implementation of the programmes. In the next Chapter, we have made some observations for the coordination of the programmes of development in the rural areas.

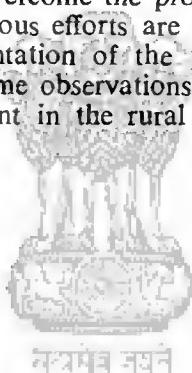


TABLE 3·1

State Plan Outlays of some Development Programmes in the Rural Areas During the Fourth Five Year Plan

(Outlay : Rupees in Crores)
(Employment Generated : Million Man-days)

State	Agricultural Production		Minor Irrigation		Soil Conservation		Arua Development		Animal Husbandry	
	Outlay Generated	Employment Generated	Outlay Generated	Employment Generated	Outlay Generated	Employment Generated	Outlay Generated	Employment Generated	Outlay Generated	Employment Generated
1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	10·00	6·78	30·00	39·06	2·00	33·20	8·00	5·42	2·25	0·20
Assam	·	18·14	12·29	15·15	19·72	4·44	73·71	0·25	0·16	5·73
Bihar	·	21·10	2·10	54·00	70·30	3·50	58·10	1·00	0·67	3·00
Gujarat	·	13·50	9·15	30·22	39·35	10·00	166·01	·	·	0·27
Haryana	·	11·00	7·45	9·63	12·54	3·67	60·92	0·40	0·27	6·75
Jammu and Kashmir	·	11·16	7·56	7·64	9·95	2·50	41·50	·	·	0·61
Kerala	·	17·00	11·52	10·00	13·02	3·00	49·80	·	·	0·35
Madhya Pradesh	·	13·88	9·41	37·90	49·35	13·92	231·08	0·25	0·16	5·00
Maharashtra	·	45·00	30·51	70·00	91·14	34·00	564·43	4·50	3·05	6·50
Mysore	·	24·00	16·27	32·00	41·66	8·90	147·74	2·00	1·35	2·75
Orissa	·	17·25	11·69	12·50	16·27	1·50	24·90	1·00	0·67	3·80
Punjab	·	·	12·00	8·13	23·20	30·21	3·50	58·10	0·32	0·21
Rajasthan	·	·	3·15	2·13	13·00	16·93	2·70	44·82	0·82	0·55
Tamil Nadu	·	·	30·00	20·34	32·70	42·57	4·40	73·04	3·00	2·03
Uttar Pradesh	·	·	58·10	39·39	96·00	124·99	21·40	355·26	·	·
West Bengal	·	·	13·14	8·90	30·34	39·50	1·38	22·90	0·29	0·20

Source : Planning Commission.

TABLE 3.1—concl'd.

(Outlay : Rupees in Crores)
(Employment Generated : Million Man-days)

State	Dairying and Milk Supply			Forestry			Fisheries			Major and Medium Irrigation and Flood Control			Total		
	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay	Employ- ment Generated	Outlay
1	12	13	14	15	16	17	18	19	20	21	22	23	24	25	—
Andhra Pradesh	·	·	2.25	0.51	2.25	4.05	1.50	0.39	86.00	69.40	146.50	159.01	—	—	—
Assam	·	·	1.00	0.23	4.30	7.75	1.25	0.32	38.21	30.63	88.47	145.30	—	—	—
Bihar	·	·	3.50	0.80	4.50	8.11	2.00	0.52	111.00	89.58	203.60	230.45	—	—	—
Gujarat	·	·	1.75	0.40	3.50	6.31	3.50	0.91	110.00	88.77	179.22	311.51	—	—	—
Haryana	·	·	2.00	0.46	1.50	2.70	0.40	0.10	38.90	31.39	71.40	116.18	—	—	—
Jammu and Kashmir	·	·	0.75	0.17	3.25	5.86	0.25	0.06	11.91	9.61	42.41	75.16	—	—	—
Kerala	·	·	1.30	0.30	4.46	8.03	11.00	2.85	33.28*	26.86	83.59	112.70	—	—	—
Madhya Pradesh	·	·	1.50	0.34	7.25	13.06	1.50	0.39	83.56	67.43	164.76	371.67	—	—	—
Maharashtra	·	·	9.00	2.05	7.50	13.51	5.00	1.29	143.75	116.01	325.25	822.58	—	—	—
Mysore	·	·	2.00	0.46	4.00	7.21	3.00	0.78	77.25	62.34	155.90	278.06	—	—	—
Orissa	·	·	0.60	0.14	3.25	5.86	2.25	0.84	27.00	21.79	69.15	82.50	—	—	—
Punjab	·	·	2.75	0.63	3.00	5.41	0.43	0.11	30.16	24.34	79.86	127.46	—	—	—
Rajasthan	·	·	0.60	0.14	2.33	4.20	0.55	0.14	91.62	73.94	117.47	143.09	—	—	—
Tamil Nadu	·	·	4.50	1.03	4.40	7.93	7.50	1.94	37.85	30.54	128.35	179.78	—	—	—
Uttar Pradesh	·	·	4.00	0.91	13.00	23.43	0.90	0.23	98.00	79.09	296.90	623.60	—	—	—
West Bengal	·	·	3.90	0.89	1.91	3.44	2.95	0.76	29.55	23.84	86.04	100.84	—	—	—

Source : Planning Commission.

TABLE 3.2

Potential for Minor Irrigation Works

('000 hectares)

State	Ultimate Potential			Likely Achievement by 1973-74*			Potential for Works after 1974		
	Surface Water	Ground Water	Total Area	Surface Water	Ground Water	Total Area	Surface Water	Ground Water	Total Area
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	2,024	2,226	4,250	878	390	1,768	1,146	1,336	2,482
Assam	1,012	486	1,498	672	20	692	340	466	806
Bihar	1,821	2,226	4,047	1,328	809	2,127	493	1,417	1,910
Gujarat	486	1,619	2,105	150	1,173	1,323	336	446	782
Haryana	40	1,012	1,052	40	728	768	..	284	284
Jammu and Kashmir	405	142	547	299	16	315	106	126	232
Kerala	809	202	1,011	322	20	342	487	182	669
Madhya Pradesh	809	2,226	3,035	778	728	1,506	31	1,498	1,529
Maharashtra	809	1,619	2,428	464	1,214	1,678	345	405	750
Mysore	809	1,619	2,428	371	567	938	428	1,02	1,490
Orissa	1,214	607	1,821	349	81	430	865	526	1,391
Punjab	122	2,033	2,955	54	2,428	2,482	68	405	473
Rajasthan	405	2,023	2,428	306	1,619	1,925	99	404	503
Tamil Nadu	809	1,821	2,630	800	1,335	2,135	9	486	495
Uttar Pradesh	1,012	10,323	11,335	1,000	5,807	6,807	12	4,516	4,528
West Bengal	1,214	1,214	2,428	527	283	810	687	931	1,618
All India	13,840	32,374	46,214	8,170	17,805	25,975	5,670	14,569	20,239

*Estimated by the Working Group.

Source : 1. For Col. (2)—Report of the Working Group for formulation of Fourth Five Year Plan proposals on Minor Irrigation and Rural Electrification, 1968, Ministry of Agriculture, Government of India.

2. For Cols. (3) and (6)—Report of the Task Force on Ground-Water Resources, 1972, Planning Commission, Government of India.

TABLE 3-3

Potential for Irrigation Works after 1973—74

State	Likely Gross Cropped Area, 1973-74			Potential for Minor Irrigation after 1973-74 ('000 hectares)	(5) as percentage of (4)	Potential for Major and Medium Irrigation after 1973-74 ('000 hectares)	(7) as percentage of (4)	(2)+(5)+ (7) as per- centage of (4)
	Irrigated	Dry	Total					
Andhra Pradesh	4,375	8,840	13,215	2,482	18.78	3,703	28.04	79.92
Assam	808	2,350	3,158	806	25.52	845	26.75	77.86
Bihar	3,891	8,201	12,092	1,910	15.79	5,732	58.15	95.38
Gujarat	1,994	9,254	11,248	782	6.95	1,294	11.50	36.13
Haryana	2,274	2,190	4,464	284	6.36	*	*	*
Jammu & Kashmir	395	499	894	132	25.95	10	1.12	71.25
Kerala	781	2,270	3,051	669	21.93	561	18.38	65.91
Madhya Pradesh	2,276	18,636	20,912	1,529	7.31	4,455	21.30	39.50
Maharashtra	2,742	17,810	20,052	750	3.74	1,555	7.74	22.67
Tripura	1,832	9,179	11,011	1,490	13.53	793	7.20	37.37

Orissa	.	.	.	.	.	1,430	6,439	7,869	1,391	17.68	2,210	28.08	68.93
Punjab	.	.	.	.	.	4,473	1,464	5,937	473	7.97	1,364*	13.11*	85.26*
Rajasthan	.	.	.	.	.	3,054	11,712	14,766	503	3.41	1,991	13.48	37.57
Tamil Ndu	.	.	.	.	.	3,649	3,822	7,471	495	6.62	194	2.59	58.
Uttar Pradesh	.	.	.	.	.	10,356	14,801	25,157	4,528	18.00	7,482	29.74	88.91
West Bengal	.	.	.	.	.	1,710	5,154	6,864	1,618	23.57	928	13.51	62.00
All India	.	.	.	.	.	46,497	1,24,130	1,70,617	20,239	11.86	34,417	20.17	59.28

*The figures for Haryana are included with Punjab.

SOURCE : 1. For Col. (5) please see table 3.2.

2. For Col. (7), Central Water and Power Commission, Ministry of Irrigation and Power.

3. For Cols. (2), (3) and (4) please see table 2.9.

TABLE 3.4

Net Irrigated and Net Sown Area in India, 1967—68

(Area : '000 hectares)

State	High Rainfall Areas (1150 mmms and above)			Medium Rainfall Areas (750—1150 mmms)			Low Rainfall Areas (Up to 750 mmms)			Total Area					
	No. of Dis- districts	Net Irriga- ted Area	Net Sown Area	No. of Dis- districts	Net Irriga- ted Area	Net Sown Area	No. of Dis- districts	Net Irriga- ted Area	Net Sown Area	No. of Dis- districts	Net Irriga- ted Area	Net Sown Area			
1	2	3	4	5	6	7	8	9	10	11	12	13			
Andhra Pradesh	•	•	•	•	•	•	16	2,578	7,296	5	511	4,081	21	3,089	11,377
Assam	•	•	•	11	612	2,393	•	•	•	•	11	612	2,393		
Bihar	•	•	•	14	1,198	6,629	3	813	1,655	•	•	17	2,011	8,284	
Gujarat	•	•	•	3	78	791	5	275	2,447	11	755	6,564	19	1,108	9,802
Haryana	•	•	•	•	•	•	1	25	238	6	1,107	3,276	7	1,132	3,514
Himachal Pradesh	•	•	•	1	5	35	9	85	512	•	•	10	90	547	
Jammu & Kashmir	•	•	4	33	241	3	181	346	2	70	92	9	284	679	
Kerala	•	•	10	411	2,129	•	•	•	•	•	10	411	2,129		
Madhya Pradesh	•	•	21	623	9,906	19	429	7,055	3	91	836	43	1,143	17,797	
Maharashtra	•	•	9	438	3,896	10	309	7,734	7	530	6,637	26	1,277	18,267	
Manipur	•	•	1	65	179	•	•	•	•	•	1	65	179		

Mysore	.	.	.	5	297	920	5	258	2,397	9	537	6,670	19	1,082	9,987	
Nagaland	.	.	.	3	12	47	..	..	..	..	..	..	..	3	12	47
Orissa	.	.	.	13	738	5,989	..	..	..	..	..	..	..	13	738	5,989
Punjab	.	.	.	..	..	..	3	174	609	8	2,159	3,383	11	2,333	3,992	
Rajasthan	.	.	.	..	..	..	6	291	1,748	20	1,574	13,349	26	1,865	15,097	
Tamil Nadu	.	.	.	5	536	1,023	9	2,093	5,060	..	..	..	..	14	2,629	6,083
Tripura	.	.	.	1	17	236	..	..	..	..	..	..	..	1	17	236
Uttar Pradesh	.	.	.	9	584	1,900	38	3,708	13,060	7	1,365	2,487	54	5,657	17,467	
West Bengal	.	.	.	16	1,478	5,569	..	..	..	..	..	..	..	16	1,478	5,569
All India	.	.	.	132	7,148	42,127	127	11,219	50,167	79	8,724	47,457	338	27,091	1,39,751	

SOURCE : Directorate of Economics and Statistics, Ministry of Agriculture.

TABLE 3·5
Rural Roads—Potential for Construction

Zone	Soil Type			Village Roads	District Roads	
		1	2	(000 kms)		
A	Moorum Soil	.	.	.	14	10
	Black Cotton Soil	.	.	.	7	5
	Heavy Clay in Deltaic Areas	.	.	.	7	5
	Laterite/Kankar	.	.	.	7	5
	Other Soils	.	.	.	35	25
B	Moorum Soil	.	.	.	2	17
	Black Cotton Soil	.	.	.	38	27
	Laterite/Kankar	.	.	.	19	13
	Other Soils	.	.	.	14	10
C	Ground Area	.	.	.	13	10
D	Deltaic Clay	.	.	.	7	5
E	All Soils	.	.	.	50	35
F	Laterite/Kankar	.	.	.	17	12
	Other Areas	.	.	.	17	12
G	Ground Area	.	.	.	1	1
	Moorum Area	.	.	.	2	2
	Other Areas	.	.	.	9	6
H	Mule Track	.	.	.	43	..
	Jeepable Road	.	.	.	..	30
All India		.	.	.	324	230

Zone A : Tamil Nadu, Andhra Pradesh, Mysore, Kerala, Southern Orissa and Goa.

Zone B : Maharashtra, Gujarat, Madhya Pradesh and Semi-hill districts of Uttar Pradesh.

Zone C : Assam, Darjeeling, Jalpaiguri and Cooch-Behar districts of West Bengal.

Zone D : West Bengal except for areas in Zone C.

Zone E : Bihar, Plains of Uttar Pradesh and Northern Orissa.

Zone F : Rajasthan.

Zone G : Delhi, Haryana and Punjab.

Zone H : Himachal Pradesh, hill districts of Uttar Pradesh, Jammu and Kashmir Nagaland' Manipur and Tripura.

SOURCE : Report of the Committee on Rural Roads, 1968, Ministry of Transport and Shipping (Road Wing), Government of India.

TABLE 3·6

Potentially Exploitable Forest Area, 1969-1970

('000 hectares)

State	1	Forest Area	Exploitable Forest Area in use	Poten-
				ti-
	2	3	4	
Andhra Pradesh	6,512	4,836	1,678	
Assam	4,442	1,509	200	
Bihar	3,059	2,107	252	
Gujarat	1,800	1,513	..	
Haryana	142	57	30	
Himachal Pradesh	2,159	1,203	447	
Jammu and Kashmir	2,104	1,858	246	
Kerala	1,269	108	244	
Madhya Pradesh	16,813	10,182	3,987	
Maharashtra	6,696	3,829	2,471	
Manipur	602	291	311	
Mysore	3,510	2,615	895	
Nagaland	290	31	207	
Orissa	6,746	5,683	1,042	
Punjab	202	90	..	
Rajasthan	3,760	2,810	..	
Tamil Nadu	2,210	1,419	791	
Tripura	630	240	190	
Uttar Pradesh	4,872	3,462	701	
West Bengal	1,183	1,080	65	
All India	75,033	45,679	14,760	

SOURCE : Inspector General of Forests, Ministry of Agriculture.

CHAPTER IV

COORDINATION OF THE PROGRAMMES AT THE DISTRICT LEVEL

4.1. We have made an attempt to suggest in the previous Chapter suitable programmes of development which could be taken up in the agricultural sector, for overcoming the problems of unemployment/under-employment during the Fifth Plan period. Among the programmes suggested by the Group, minor irrigation works, soil conservation, land reclamation and rural roads have been recommended as the most labour intensive programmes in the construction phase in the rural areas. The Group is convinced that a massive rural works programmes during the next five years is the only answer that can overcome the problem of unemployment in the country.

4.2. The most crucial aspect of such a programme is the preparation and selection of the schemes on which the unemployed would be required to work. Some of the major defects found in the implementation of the works programmes, so far, have been those of defective planning and administrative bottlenecks. An evaluation of some of the on-going programmes of rural works has revealed that there is a wide gap between their planning and actual execution. A number of the projects have been taken up for execution without any assessment of their feasibility or requirements for the region concerned. No proper bench mark surveys were undertaken. The failure to draw up technically sound master plans for the areas taken up for development has led to haphazard and faulty execution of the schemes. Irrigation sources have been found to be defectively located resulting in low water level and unsatisfactory flow. In some areas the works were not based according to the topographical features of the command area. Badly designed roads and dams would tend to be washed away creating new drainage and water logging problems¹. It is necessary, therefore, to stress that the rural works programmes when drawn up, should be technically sound, both from the point of view of implementation and economic feasibility.

¹See (a) "Rural Works Programmes—Where it has Gone Astray" by Ranjit Gupta, *Economic and Political Weekly*, Bombay, May 1971.

(b) *Small Farmers : State Policy and Programme Implementation* by V. R. Gaekwad, *National Institute of Community Development*, Hyderabad, 1971.

(c) PEO Publication No. 58, *Report on Evaluation of Rural Manpower Projects*, Planning Commission, Government of India, 1967.

(d) "The Right to Work" by Dr. Raj Krishna, *Indian Trade Union Conference on Unemployment*, International Confederation of Free Trade Unions, Asian Regional Organisation, New Delhi, 1971.

Coordination

4.3. One of the organisational bottlenecks that would have to be avoided is that of implementation by multiple agencies. An instance is the programme of minor irrigation: Over and above, the programmes included in the State Plans for the Fourth Five Year Plan period, a number of minor irrigation programmes involving an outlay of about Rs. 41 crores have been sanctioned during 1971-72 under the drought Prone Area Programmes (DPAP). Substantial amounts are also expected to be sanctioned under the programmes for 1972-73 and 1973-74. Similarly, minor irrigation schemes involving an outlay of Rs. 12.5 crores were sanctioned during 1971-72 under the Crash Scheme for Rural Employment (CSRE) and further outlays are likely for 1972-73 and 1973-74. The Small and Marginal Farmers and Agricultural Labourers Programmes (SFDA/MFAL) also provide for the construction of tanks, dugwells and tubewells. Further, a number of minor irrigation programmes have been recently approved by the Government under 'Special Employment Programmes' formulated by the State Governments².

4.4. In the same manner, the programmes of soil and water management, including soil conservation and land reclamation, road construction, forestry and animal husbandry are in the State Plan programmes and also under the DPAP, CSRE, SFDA, MFAL, Special Employment Programmes, Backward Areas Development programmes, etc. Again, soil and water management, afforestation and land reclamation are being undertaken in the Desert Development Programmes and the Dry Area Development Pilot Programmes.

4.5. The programmes enumerated in the last two paragraphs include State schemes, Centrally sponsored schemes and Central sector schemes. The State schemes are planned and executed by the State Governments with funds from State Plan outlays including Central assistance. The Centrally sponsored schemes are those drawn up by the Central Government, but executed through the agency of the State Governments. These schemes are financed fully/largely by the Central Government. The Central sector schemes are generally planned, financed and executed by the Central Government or by its subordinate offices.

District Project Formulation Bureaux

4.6. The multiplicity of these programmes at the block/district level is likely to lead to lack of coordination, overlapping and/or even duplication of work. The Group is aware, that in a number of States, there are Coordination Committees at the district levels on which all the officers concerned with the programmes to be implemented are members. However, there have been problems in the implementation of the plans of development through these Coordination Committees.

²Report of the Working Group set up by the Planning Commission to examine the Recommendations made in the Interim Report of the Expert Committee on Unemployment, Planning Commission, Government of India, August 1972, (mimeographed) pages 5 and 6.

We feel, therefore, that if technically sound master plans are to be drawn up and implemented, the Coordination Committees should be assisted at the district level by the District Project Formulation Bureaux comprising experts from various disciplines to advise in the planning and technical worthiness of the schemes taken up for implementation. Such Bureaux should have on their rolls, at least, one Civil Engineer, an Agronomist and an Economist. Subject matter specialists, depending upon the special requirements of the district concerned, should also be appointed on the Bureaux. Thus, for example, if the district concerned is important for its forest wealth a specialist in forestry could be employed. If on the other hand, animal husbandry programmes have greater relevance in the region concerned, a specialist for this programme would have to be appointed.

4.7. The District Project Formulation Bureaux should serve as a secretariat of the Coordination Committees. All the schemes of development—State or Central—put up by any department to the Coordination Committee should be examined by the Bureaux before being cleared for implementation. The feasibility of the schemes and their financial and technical worthiness should be assessed by the Bureaux. Once the approval of the Bureaux has been obtained, there should be no further modifications of the scheme during implementation, or in the financial outlays sanctioned. The Bureaux should undertake the basic ground work of the requirements of the district concerned, conduct technical studies and evaluate the economic and technical worthiness of the schemes to be taken up. They should take the help of the State Government departments concerned, whenever necessary, both for the collection of data and for assessment of the programmes to be implemented. It should be the responsibility of the Bureaux to undertake surveys of the extent of resources available in the district, formulate the priorities of the programmes that should be taken up in the districts concerned, draw up technically sound schemes, as well as, assess the technical worthiness of the programmes which are to be implemented. The Bureaux should also be able to undertake rational allocation of inputs and resources, formulation of realistic policies and estimation of potentials for development.

Maintenance of Works

4.8. Once the 'works' schemes have been completed, arrangements should be made to maintain the capital assets properly in a permanent state of repair. The maintenance of capital work like roads, canals and irrigation works would provide continuing employment to a part of the rural labour force. Often, adequate provision have not been made by the State Governments for the maintenance of the schemes. "1969 was a year when most States diverted funds from maintenance of roads, etc., to Plan resources. There must be an agreement that whatever has been claimed for maintenance of capital works in the nature of roads, canals, irrigation works and buildings and have been taken into consideration by the Finance Commission must be duly provided in the Budgets of the States so that the rural areas are

not deprived of the employment opportunities arising out of these regular maintenance works"³. It is quite likely that these works may be in areas where employment is required for increasing the incomes of those below the minimum levels.

Problems of Multiple Cropping

4.9. A multiple cropping programme would entail a great deal of organisation and support. The programme would require a continuous process of replacement of high-yielding varieties of seeds and of evolving new varieties from time to time. Research priorities and allocation of funds to various research programmes would be necessary not only from the production, but also from the employment objectives. There would be need for a linkage between research and extension on a continuous basis. The importance of a two-way flow of information between extension services and research stations should be recognised, in order to clearly define priorities among research programmes dealing with first, the immediate problems of agriculture and second, the long-term requirements.

4.10. At present, research activities have been centred largely around rice and wheat and, to some extent, the hybridisation programme of jowar, bajra and maize and cotton and some of the oil-seeds. There is need for research in the development of other crops, including pulses, for the dry farming areas. Research should be more widespread to benefit a larger section of the agricultural community. It should include research on development of varieties of crops that can withstand unfavourable environments and also those which would resist or tolerate incidence of disease and pests under different field conditions. With the limited cereal-oriented nature of the research work undertaken at present, the extension work has also followed on the same lines. As a result, the farmers are not guided to attain optimum production. The most suitable crop planning for each area should be drawn up and advice provided for execution.

4.11. The jurisdiction of a village level worker is also large and unwidely, particularly in the Intensive Agricultural Areas. In addition to improving their technical competence by additional training, there is need to strengthen the extension agency so that employment opportunities could be created for a large number of agricultural graduates and diploma holders. It is necessary to pay greater attention to small and marginal farmers in the matter of extension service rather than to large farmers. It may be worth considering whether dualistic types of extension programmes could be thought of by which the services could be provided on payment basis for the larger farmers, while free service could be continued for the small farmers. The number and types of subject matter specialists should be suitably increased to support the general extension staff.

³ 'Challenges of the Seventies—Agriculture' by B. Sivaraman, Vice-Chairman, National Commission on Agriculture, talk to the members of the Indian Institute of Public Administration, Rajasthan Regional Branch, Jaipur, June 1971.

CHAPTER V

SUMMARY AND CONCLUSIONS

5.1. The terms of reference of the Working Group require it "to ascertain facts, locate the main problem areas, examine solution for the problems and suggest such of them as it would recommend for the Committee's consideration".

(Introduction, para 3)

5.2. Three characteristics of the labour force emerge in the rural areas: that of (a) very little visible unemployment, (b) seasonal unemployment and (c) invisible or disguised unemployment. While the extent of full employment and unemployment can be assessed, there are difficulties in the measurement of disguised unemployment.

(Chapter I, Paras 1.2—1.3)

5.3. We examined the different sources of data available for the estimation of rural unemployment and underemployment, both at the regional and the all-India level.

(Chapter I, Paras 1.4—1.15)

5.4. The Group is aware of the comments of the (Dantwala) Committee of Experts on the limitations of the NSS data on employment and unemployment. However, if an idea is to be obtained of the extent of unemployment and underemployment in the rural areas at the beginning of the Fourth Five Year Plan, some estimations would have to be made. Despite its anomalies, we felt that the NSS estimates have their own validity. We, therefore, decided to make use of the percentage estimates of the labour force projections, unemployment and underemployment in the NSS Rounds for the rural population.

(Chapter I, Paras 1.16—1.17)

5.5. In order to arrive at the estimates of unemployment and underemployment at the beginning of the Fourth Five Year Plan, a simple average of the participation rates and unemployment/labour force ratios estimated by the NSS in the 14th to the 17th Rounds and the 19th Round for the rural areas was used. The labour force reducing employment was presumed to be of three categories : those who were totally unemployed, those who were available for additional work and those who were underemployed involuntarily and would have taken up additional work if it was available.

(Chapter I, Paras 1.20—1.22)

5.6. On these basis, we worked out three estimates of the number of persons for whom employment had to be found in 1969 among the rural unemployed and underemployed viz.:

- (a) 7.82 million persons who were totally unemployed;
- (b) 9.12 million persons who were both unemployed and under-employed but available for additional work; and
- (c) 22.52 million persons, which would include 9.12 million persons indicated at (b) above plus the 13.40 million persons considered as unemployed on the assumption that work would have to be provided to all the male labour force who were working for less than 42 hours per week.

(Chapter I, Para 1.23)

5.7. Using the same methodology as for 1969, we estimated the labour force in the rural areas for whom full time employment would have to be found at 16.78 million persons between 1969-74 and 17.94 million persons between 1974-79. We accepted the outstanding unemployment in 1969 to range between 9.12 and 22.52 million persons. The Fourth Plan programmes in the rural areas would not be able to provide employment for more than 18 million man-year units by 1974. Adding the outstanding unemployment in 1974, the country would have to aim at providing full time employment to a minimum of 25.84 million and maximum of 39.24 million persons.

(Chapter I, Paras. 1.24—1.25)

5.8. In order to assess the likely employment generation in the rural areas during 1969-74, the Working Group examined all the Fourth Five Year Plan programmes listed under "Agriculture and Allied Sectors", "Major and Medium Irrigation", "Flood Controls" and "Rural Roads". The financial outlays envisaged for these programmes, as well as the institutional and private investment, were accounted for.

(Chapter II, Paras 2.1—2.3)

5.9. The programmes discussed above would be able to generate employment in three different ways during the Plan period : viz., the construction phase, the maintenance or continuing phase and the production phase.

(Chapter II, Paras. 2.4—2.6)

5.10. The employment potential in the construction phase of the Fourth Plan programmes under agriculture was likely to be the largest of the three phases of employment. The Working Group examined the labour co-efficients worked out by the Planning Commission, the Ministry of Agriculture as well as some of the State Governments. Choosing the highest available labour co-efficients, the Group finds that the number of man-days of employment that may be generated in

the construction phase during the five years of the Fourth Plan may be 7,453·1 million. If the average employment per persons is taken at 273 days, then these figures would mean that 27·30 million man-years of employment would be generated by the different Fourth Plan Programmes. As the share of the total investment under these programmes increases gradually in the five successive years of the Plan, we have assumed that one-fourth of the employment would be generated in the last year of the Plan, i.e. 6.85 million man-year units. We are aware that some portion of this employment may be a spill-over from the previous plan periods. No figures are, however, available of their numbers.

(Chapter II, Paras 2.7—2.9)

5.11. Some of the labour which is employed at the construction phase will continue to get employment, even after the programmes are completed, to maintain the assets and institutions created in working order. Applying the construction norms prepared in the Planning Commission in 1960, after adjustment for price changes, the likely man-days of employment available in the continuing phase would be of the order of 1,439·4 million or 5·27 million man-year units, from the last year of the Fourth Plan.

(Chapter II, Para 2.10)

5.12. We have also attempted to work out the employment generating in the production phase, i.e., the additional employment that is likely to be available in agriculture on the completion of the development programmes. We found that additional employment would be available at the end of the Fourth Plan period of about 1,174·0 million man-days or 4·30 million man-year units.

(Chapter II, Para 2.11)

5.13. The total additional employment potential in the construction, continuing and production phases in the last year of the Fourth Five Year Plan would thus be $(6.85 + 5.27 + 4.30) = 16.42$ million man-year units. The increased investment would, in its wake, give rise to increased transport and trade in the rural areas. We have assumed an additional 10 per cent employment under these activities, i.e., a little more than one million persons. Even with the most optimistic estimate of additional employment generation in the agricultural sector, these would not be more than 18 million man-year units in the last year of the Fourth Five Year Plan.

(Chapter II, Paras 2.12—2.15)

5.14. The provision of employment of 18 million man-year units would leave a backlog of a minimum of 7.90 million and a maximum of 21·30 million man-year units at the beginning of the Fifth Plan. Approximately 17.94 million new entrants would require full-time employment during 1974-79. Adding these new entrants, the programmes

of development would have to aim at providing full time work by 1979 for a minimum of 25.84 million persons or a maximum of 39.24 million persons.

(Chapter III, Para 3.3)

5.15. The Group feels that the approach to the programmes of development for the rural areas must be employment oriented for the next Plan period. In our view, the programmes of irrigation works, soil conservation, land reclamation and rural roads would be the most labour intensive and productive sources of employment. Massive rural works encompassing all these programmes would be the only answer to the problems of unemployment and underemployment.

(Chapter III, Para 3.6)

5.16. The minor irrigation programmes generate the largest amount of employment in the construction and maintenance phases. It has its impact on the cropping pattern in the production phase also. It brings in its wake labour intensity in the cultivation of the same crop, a change in the cropping pattern and an increase in the intensity of cultivation. The cost of construction of minor irrigation works is also likely to be lower than those of major and medium irrigation works and the work can be completed in the least amount of time.

(Chapter III, Paras. 3.7—3.10)

5.17. The scope for the expansion of irrigation facilities is quite large. Of a potential of 46 million hectares (gross) under minor irrigation, about 26 million hectares would have been covered by 1974. 20 million hectares of both ground and surface water resources would still remain to be completed. The Group suggests that if minor irrigation programmes are taken up to cover 15 million hectares during 1974-79, it would provide 17 million man-year units of employment in the construction phase itself.

(Chapter III, Para. 3.11)

5.18. The potential for expansion of minor irrigation works varies in the different States. The scope is largest in Uttar Pradesh, followed by Andhra Pradesh, Bihar, Madhya Pradesh, Mysore, West Bengal and Orissa. It is the least in Jammu and Kashmir, Haryana, Tamil Nadu, Kerala and Rajasthan. As compared to the gross cropped area, the ultimate expansion of irrigation from all sources is least where the need is largest especially in the States of Maharashtra, Gujarat, Mysore, Rajasthan and Madhya Pradesh.

(Chapter III, Paras. 3.12—3.13)

5.19. There is scope for undertaking soil conservation work over an area of 120 million hectares; nearly 20 million hectares can be reclaimed for agriculture and for grass lands and village fuel lots. If 15

million hectares are taken up for soil conservation work and 5 million hectares for land reclamation during 1974-79, it would generate employment for about 32.51 million man-year units in the construction phase.

(Chapter III, Paras. 3.16—3.17)

5.20. The programmes of minor irrigation, soil conservation and land reclamation could encourage intensification of agricultural operations. The scope for expansion of multiple cropping in the country would differ from area to area. It is necessary that experiments undertaken on crop rotation in the research institutions, should be extended on a sufficient scale to cultivators' fields in the different parts of the country. Even if additional 9 million hectares are brought under multiple cropping in the next five years, the programme would aid in expanding employment opportunities in those areas.

(Chapter III, Paras 3.18—3.20)

5.21. The effect of introduction of mechanisation in agriculture on labour employment could vary according to areas. We feel that more field research needs to be undertaken to decide upon the optimum rates and kinds of mechanisation for different agro-climatic considerations involving varying cropping patterns. It is not possible at present to lay down any general lines as to whether farm mechanisation would be favourable to employment or not.

(Chapter III, Paras. 3.21)

5.22. The technological problems in the low rainfall areas in the country would need to be considered. Apart from the limitations imposed by low and uncertain soil moisture conditions, these areas suffer from many other limitations including the non-availability of suitable varieties of crops. Two programmes should, therefore, prove critical for these areas : One, techniques for conservation and economic use of the available water and soil moisture and two, the evolution of a suitable cropping pattern for the particular conditions. We are aware that compared to the irrigated areas, these programmes would not bring about any significant changes in the employment and incomes position of the rural labour force in the low rainfall areas. Supplementary sources of employment would have to be considered for these areas.

(Chapter III, Paras. 3.22—3.25)

5.23. After minor irrigation and soil conservation, road construction is the next most important employment oriented programme, no only at the construction phase but also in the maintenance phase. The Working Group would recommend that at least one lakh kilometre of rural roads should be taken up for construction during 1974-79. This would provide employment of about 8.02 million man-year unit in the construction phase.

(Chapter III, Paras. 3.26—3.27)

5.24. We have suggested supplementary animal husbandry programmes among small and marginal farmers and agricultural labourers, in order to improve their economic position. In order that such programmes should ensure profitability and guarantee economic returns to them, it would be necessary to strengthen the collection, processing and distribution facilities so that the small farmers can be assured of a regular additional income.

(Chapter III, Paras. 3.28—3.30)

5.25. An activity which has great scope for providing employment is the exploitation of the forest resources. The Working Group would recommend the programme suggested by the National Commission on Agriculture for the clear-felling and plantation of forest area of 7.26 lakh hectares in the inaccessible hardwood forests and the mixed forests of valuable and low quality stands between 1974-1980. The work would provide employment for 450 million man-days in the construction phase. In order to develop 7.26 lakh hectares, construction of forest roads would have to be undertaken over an area of 7,260 kilometres, which would provide additional employment of 10 million man-days in the construction phase.

(Chapter III, Paras. 3.31—3.36)

5.26. We have attempted to work out the financial implications of the construction activities suggested above and also the likely employment that would be generated by 1979. The cost of the construction activities under minor irrigation, soil conservation, land reclamation and rural roads and of the forestry programmes would work out to about Rs. 7,242 crores. The employment that these programmes would generate in the last year of the Fifth Plan would work out to 14.80 million man-year units in the construction phase, 8.26 million man-year units in the continuing phase and 11.54 million man-year units in the production phase—in all 34.60 million man-year units.

(Chapter III, paras 3.33—3.34)

5.27. The Group is convinced that a massive rural works programme incorporating all the activities suggested above, is the only answer that can overcome the problem of unemployment in the country.

(Chapter IV, para 4.1)

5.28. The most crucial aspect of such a massive rural works programme would be the preparation of technically sound master plans of works on which the unemployed would be required to work. Defective planning and administrative bottlenecks have been some of the major flaws found in the implementation of the works programmes so far.

(Chapter IV, Para. 4.2)

5.29. The multiplicity of the Centrally-aided programmes at present at the block/district level is likely to lead to lack of coordination, overlapping and/or even duplication of work.

(Chapter IV, Paras. 4.3—4.5)

5.30. The Group is aware that there are Coordination Committees at the district level on which the Officers concerned with the programmes to be implemented, are members. We feel, however, that if technically sound master plans are to be drawn up, these Coordination Committees should be assisted by the District Project Formulation Bureaux should act as the Secretariat of the Coordination Committees and advise in the planning and technical worthiness of the schemes taken up for implementation. Such Bureaux should have at least one Civil Engineer, an Agronomist and an Economist on its rolls. Subject matter specialists should also be appointed on the Bureaux depending upon the special requirements of the district concerned. The Bureaux would be responsible for undertaking surveys, formulating priorities and drawing up technically sound schemes.

(Chapter IV, Paras. 4.6—4.7)

5.31. Arrangements should be made to maintain the capital assets of construction works properly in a permanent state of repair.

(Chapter IV, para 4.8)

Sd/-

(K. RAMIAH)

Chairman

Sd/-

(M. K. MUKHERJI)

Member

Sd/-

(NILKANTHA RATH)

Member

Sd/-

(RAM SARAN)

Member

Sd/-

(RAJ KRISHNA)

Member

Sd/-

(K. K. BHATTAGAR)

Member

Sd/-

(MISS F. K. WADIA)

SECRETARY

NOVEMBER 4, 1972.